FEEDSTUFFS

The Weekly Newspaper for the Feed Industry

Volume 32—Number 8 | FEBRUARY 20, 1960 | 1 Year $5, 2 Years $8

Drug Status Not Changed by Law's March 6 'Deadline'

WASHINGTON — The so-called "deadline" date of March 6 for the food additives amendment to the food and drug law will have no new effect on present uses of drugs in feeds.

This was explained this week by Food and Drug Administration officials.

The food additives amendment, which includes the well known Delaney clause on carcinogens, becomes "fully effective" March 6. As this date approaches, there have been some questions as to what this would mean in regard to the estrogen and arsenical situations.

As feed men know, under the interpretation of the Delaney clause, there have been and are certain restrictions in regard to supplemental new drug applications where estrogens or arsenicals are involved in the formulas, but it is noted that previously cleared uses and certain new uses will not be affected by the

(Turn to DRUG STATUS, page 8)

Rail Rate Proposals In Committee's Hands

BOSTON—Boston Grain & Flour Exchange members, who got together here Feb. 11 for their annual banquet, were brought up to date on progress that has been made in the direction of rail rate reductions on grain, grain products and protein meal shipped east out of the Midwest.

Their informant was John E. Bressette, director of transportation, Wirthmore Feeds, Inc., Waltham, Mass., who has represented the exchange, the New England Millers & Shippers Assn. and Maine Poultry Associates, Inc., in rail rate negotiations. (Feedstuffs, Jan. 23.)

He said recommendations concerning rail rate adjustments have been presented by the railroad research committee of eastern lines to the traffic executives committee, which is composed of top eastern railroad officials.

The next step would be for the traffic executives committee to place the proposals on the docket of the

(Turn to RAIL RATE, page 97)

Calls for Opposition To New York Meat Labeling Legislation

CHICAGO — The American Feed Manufacturers Assn. has called for vigorous feed industry opposition against proposed New York legislation which would require tagging of meat to show the additives used in producing the animals or birds.

A special AFMA bulletin points out that bills have now been introduced in the New York State Senate and Assembly in Albany calling for all poultry and red meat to be tagged showing the kind and amount of

(Turn to OPPOSITION, page 8)

Egg-Type Chick Output Is Cut Back Sharply

WASHINGTON — Production of egg-type chicks in January declined sharply from a year ago, the U.S. Department of Agriculture noted in its latest hatchery report, and an even bigger cutback is indicated for February.

While it is still early in the hatching season for flock replacement birds, an extreme reaction is being shown to the recent low egg prices.

Commercial hatcheries sliced their production of egg-type chicks in January to 23,687,000. This is 33% less than the total of 35,427,000 in the same month of 1959.

Also, based on numbers of eggs in incubators on Feb. 1, the February hatch will be much smaller than a year earlier. The number of eggs in incubators was down 40%.

Although it is early in the season and prospects for improved egg prices later may increase chick production later, the sharp January-February cut indicates that output for the 1960 season may be down considerably.

Earlier, USDA reported that the nation's egg producers planned to buy 9% fewer flock replacement chicks this year. (Feedstuffs, Feb. 13.)

Meanwhile, it is noted from the February hatchery report that pro-

(Turn to CHICKS, page 8)

Commodity Market Analyzed; Beans Termed as 'Comfortable Property'

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON — Soybeans look like a comfortable property to own.

Notwithstanding the U.S. Department of Agriculture announcement this week that loan impoundings of beans were only approximately 48 million bushels as compared with 124 million last year, there is still a firm feeling at top levels of USDA that beans are a comfortable property to own.

The farmer can hold these beans.

An informed source at USDA remarked that it is unlikely that USDA will cut the price support level for beans, which will continue that support level through Jan. 1, 1961. This also will mean that the USDA resale price of beans probably will not decline when an announcement of price support levels for the feed grains will be stated late next week.

On the basis of the Jan. 15 parity price for corn using the legal basis of support for that crop, it is now indicated that the national average price support for corn will be approximately $1.06 bu.

This does not necessarily mean

(Turn to COMMODITIES, page 97)

FEEDSTUFFS *Features This Week*

CUSTOMER SERVICES—What extra services can a feed mill give farmers at a profit? A Minnesota mill operator answers this question on **page 26.**

DAIRY PELLETS—"Pelleted grain will play an increasingly significant role in dairy cattle feeding," says the author of an article starting on **page 32.**

VITAMIN A—Articles on a proposed vitamin A reference standard will be found on **page 36.**

DEALER SALES—How a diversified operation is paying off for a Tennessee dealer is told on **page 46.**

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Maritime Milling Closing Plants

By Special Correspondent

BUFFALO—The Maritime Milling Co., acquired by the George Urban Milling Co. in 1957, closed its feed mill here Feb. 15, and it was reported that its second feed mill at Seaford, Del., was to be shut down Feb. 22.

These mill closings follow the termination of financing of Maritime by the Marine Trust Co. of Western New York, which Urban Milling has called the principal creditor of Maritime.

Stockholders of Urban Milling met Feb. 15 to consider a $50,000 offer by the Marine Trust for Urban to sell its position as a creditor of Maritime and to assign its position as a Maritime stockholder to Marine. The offer was discussed, but no vote was taken. This, in effect, amounted to a rejection of the Marine offer, it was reported.

Urban Milling earlier informed its stockholders of the Marine offer and pointed out that the alternative to its acceptance would mean that Marine would cease financing Maritime Milling. A termination of financing, Urban officials said, would threaten Maritime with bankruptcy.

Harold Stott, under whose direction Maritime Milling has been operating, declined to comment on the closing of the Buffalo plant.

In Seaford, Del., Wilson Wilcox said the mill he manages there was to be closed Feb. 22 and he "hoped that it would be reopened under new ownership."

Letter to Stockholders

In a letter sent by Urban Milling to its stockholders prior to the Feb. 15 meeting, the company said that it acquired Maritime for approximately $1,400,000 in an exchange of stock transaction. Debt obligations of Maritime to Urban since the purchase were carried at $400,000 by Urban Milling, the letter said.

Urban said Maritime had a $435,-

(Turn to MARITIME, page 8)

Washington Convention

Panel Examines Trends in Industry

By ROGER BERGLUND
Feedstuffs Managing Editor

YAKIMA, WASH.—A map showing precisely where the feed industry and animal agriculture are headed may not be available, but some of the likely paths (and stumbling blocks) were traced in a lively panel discussion last week at the annual convention of the Washington State Feed Assn.

Views on various industry trends and counter-trends which now exist and which are foreseen in the future were outlined Feb. 12 before a full-house audience at the Chinook Hotel.

Presenting the discussion was a panel of six men from the feed and poultry industries. Their topics were some of the most warmly discussed and debated questions of this time, not only among feed men in the West but throughout the industry.

There was general agreement on some of the broad trends and developments in production and marketing, but opinions varied as to just who will be doing what, and how.

The discussion was the highlight of the Washington group's meeting. The convention followed the annual Pacific Northwest Feed Mill Production School, which is sponsored by the association. All told, more than 300 persons were on hand for the two events.

Here are some of the observations made during two hours of rapid-fire discussion:

● Group specification buying of feed at so much over ingredient costs will spread into other areas but is not currently growing in the California areas where it started.

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FEEDSTUFFS®

The Weekly Newspaper for the Feed Industry

Published by THE MILLER PUBLISHING CO.

2501 Wayzata Blvd., Minneapolis, Minn.

Address Mail to: Box 67, Minneapolis 40, Minn.

Telephone FRanklin 4-5200 - All Offices Serviced by Bell System Teletype

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Correspondence regarding subscriptions, changes of address, etc., should be sent to Circulation Manager, Feedstuffs, Box 67, Minneapolis 40, Minn. Single copies 50¢. Subscription rates: One year $5, two years $8, in the U.S., U.S. possessions, Canada and Pan-America. Add $3 a year for postage to other countries. Readers are urged to give prompt notice of change of address and to anticipate future changes by at least three weeks' notice. Ask postman for form 22-S. Feedstuffs accepts subscriptions only through its own offices; no subscription solicitors are employed or authorized. Associated publications: The Northwestern Miller, The American Baker, Milling Production, Croplife, Farm Store Merchandising, Feedlot and Professional Nursing Home. Second-class postage paid at Minneapolis, Minn.

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Deadline

ALMOST A YEAR NOW HAS PASSED since the Food and Drug Administration published its regulations putting into effect the Food Additives Amendment and its troublesome Delaney clause. On the anniversary date of that event, March 6, the provisions of the new law become fully effective.

Precisely what "fully effective" means is not clearly understood in the feed industry. An official of the FDA appeared at the Midwest Feed Manufacturers Assn. convention in Kansas City last week to remind the industry of the date in somewhat ominous tones, but he did not shed much light on the meaning of the date—what is likely to start happening in FDA regulatory work that already isn't happening.

Clarification of this matter is requiring the usual amount of journalistic legwork that has been necessary in following the complicated path of FDA activity for the past several months. In fairness to FDA, it can be said that officials of the agency have been more than a little busy and have been most cooperative when questioned on specific subjects. Also, we don't doubt that on many occasions it has been difficult for them to know exactly what they could or should report as a policy decision. However, when the big FDA issues of the day are resolved in a sound manner, as they surely must be, the newsgatherers could well make a good case for improving the lines of communication between industry and FDA by making available to regular news channels more specific and clear statements on policies, actions and instructions to industry. This problem is only partly a private one. It is also one of broader concern because of the important role adequate news coverage plays in helping industry resolve its problem in dealing with governmental agencies.

However, under the present circumstances of keen apprehension over what the industry is facing on the FDA front, the complications of communication are at best a minor side issue.

WHAT IS THE INDUSTRY FACING? And what must it do to extricate itself from the unreasonable and unsound restrictions imposed on it by the Delaney clause?

Answers to these questions still are being earnestly sought by leaders in the feed industry and the chemical industry. There are no absolutely clear-cut images of the magnitude of the FDA problem, nor are there sure-fire solutions, but over the past several months there has been some general distillation of thinking which indicates the rough outline of answers.

First, the industry is facing continued sniping and harassment on the subject of the value and safety of additives. This originates from the "faddist" element which tends to be disproportionately vocal in the chorus of public opinion.

It also faces political pouncing from more than one corner, accompanied by some rash and unwarranted overemphasis of problems.

To at least some degree, it faces some confusion, some bureaucratic ambition to regulate more stringently than necessary and some plain ineptitude on the administrative level in government.

It faces a difficult fight in Congress to amend the legislation, even though it has at its command the finest weapons of scientific evidence and logic and has sought to use them. The rambunctious and vote-anxious legislators will have their day and will continue to do so until the democratic processes of free election catch up with them.

It faces widespread slowing down of scientific research that could seriously mar agricultural progress for years to come.

It faces a problem of proper compliance with laws and regulations in force.

THESE ARE JUST SOME OF THE MORE OBVIOUS problems. From each of these radiates dozens of smaller but potentially as troublesome ones.

What can the industry do to combat such odds? It cannot, certainly,

(Turn to **EDITORIAL**, page 97)

How's Business?

AN EVERY WEEK REVIEW OF FORMULA FEED BUSINESS VOLUME, INCLUDING PRICE, SUPPLY AND DEMAND TRENDS

Ask anybody how the feed business is these days and he'll tell you it's slow. But he'll also say that this draggy situation is due for a lift—which should come along in March when new crops of hogs and poultry enter the picture. Formula feed prices have gone down with the inactive ingredient market. The index number of wholesale feedstuff prices was off 1.1 points to 78.1 this week. A year ago the index was 88. The feed-grain index dropped 1 point to 63.9, somewhat below the 64.7 level of a year ago. There's a bit of hope in the hog-corn ratio, which rose to 11.9 from last week's 11.5. That's still not good but it's closer to the 13.6 ratio of a year ago. (Feed markets in detail on pages 98-100.)

Northwest

Spring will bring on new crops of pigs and poultry, and it's these new feed-eaters formula feed manufacturers in this region hope will smother the gloom that hangs around the mills right now.

Feed demand continues slow and business is not good—but the slump is not out of season. It came when it was expected to, and it could easily leave at the end of the month.

The huge corn crop has provided abundant feed supplies and much of the crop in the Northwest is reported high in moisture and in danger of spoilage if not fed before warm weather appears. This factor seems to be one of the major reasons why formula feed demand is slow.

Prices for formula feeds have been sliding right along with ingredient markets, which continued on the inactive side this week. Millfeeds had the only upward price movement this week.

Southwest

Formula feed business in this area continued at a slow pace, although reports indicate area running time was slightly improved over last week. Average for the area was still 4-5 days, with more mills getting the fifth day.

Some increase in orders for chick starter and turkey starter was reported. Hog feed and dairy feed continue to be important factors in the total volume. There were scattered reports that cattle feed was moving a little better.

Mixed changes in major ingredients will tend to leave price lists mainly unchanged but weakness in vegetable proteins will make reductions in some lines.

While most feed manufacturers can see no immediate upturn in business there were indications that the next few weeks would bring about some improvement.

Northeast

The February lull in formula feed sales continued and the trade holds little hope of an upturn before March or April.

Dairy feeds to mix on the farm held their sales leadership. But there have been some sales of straight carload lots of grain, indicating that grain supplies are pretty well used up and an increase in demand for complete dairy feeds is on the way. Egg mashes ranked second and broiler feeds third.

Broiler prices held unchanged at levels where growers can make a profit. Although prices have been holding up pretty well they may recede next week if birds that were put in right after the first of the year reach the market.

Egg prices remain well below a year ago. Dairy farmers are doing good on butter and milk, although the January price for milk at $4.41 cwt. in the Niagara Frontier milk marketing area was off 5¢ from the same 1959 month.

The ingredients market continued to head lower, with the exception of bran and middlings.

Running time of formula feed manufacturers last week averaged out at 36 hours, with some down to 32 hours and some up to 40 hours.

Southeast

All types of feed business were reported practically unchanged this week. If anything, sales were a little on the slower side.

Southeastern broiler producers continue to increase their placements each week with the market remaining steady at 17½@18¢ lb., f.o.b. the farm. Feed ingredient buyers continue to buy their major feed ingredients on an as-needed basis.

Demand for cottonseed meal and soybean meal is not taking care of production, and asking prices by the mills declined 50¢@$1 ton this week. Many believe that this condition will be unchanged for another 30 days.

The recent cold spell had very little effect, if any, on the broiler and egg market prices, as offerings seem to be adequate to meet demand.

Heavy frost this week in Florida killed pastures all the way down as far as Lake Okeechobee. However, with good rains, young grass should be sprouting within a week to 10 days.

Demand for roughage feeds and protein meals by the ranchers who are trying to finish out their feeding programs remains fairly good. Prices for beef cattle have improved somewhat.

Citrus pulp continues to move in fairly good volume, with prices remaining firm at $32.50, f.o.b. most producing mills. Many mills will be closing down this weekend waiting for new crop Valencias to come in.

Central States

Sales volume of commercial mixed feeds during the past week seems to have been no better or no worse than it was the week preceding. January sales had been a disappointment for just about 100% of the industry and, with the second month of the new year half gone, there would have to be a very marked increase in sales to bring the volume of business for the first two months of 1960 up to a point where it would be more or less on speaking terms with the same 60 days of 1959. By and large, sales of formula feeds have been running about 15% behind the same two-month period last year.

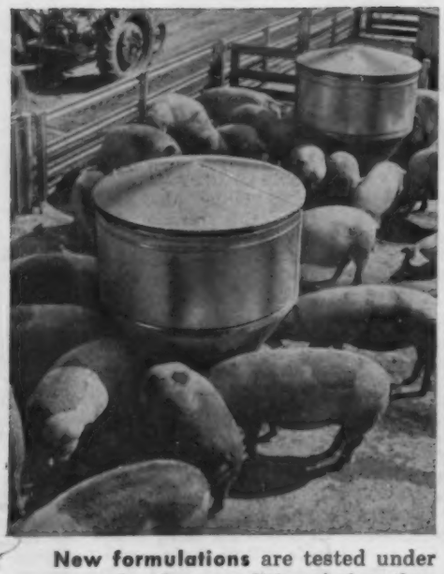
Running time is still showing only spasmodic signs of improvement; no plants appear to be running any better than a 40-hour week and many of them on a more restricted scale. Backlogs of orders have been very difficult to build up this year and most mill operations are being conducted on a day-to-day basis. The general trend of constituent feed

(Turn to **MARKETS**, page 103)

Peter Hand

DOWN ON THE FARM

To help you produce better feeds, Peter Hand Research Farm conducts thousands of feeding experiments on poultry, swine and cattle. Latest scientific developments —vitamins, antibiotics and additives—are evaluated.



New formulations are tested under every-day farm conditions before they are recommended to feed manufacturers. The farm is comprised of 450 acres and more than a dozen buildings.

Scientists with specialized experience in poultry and livestock nutrition direct all work at the farm. For the answer to any specific feed problem, look for the answer *first* from Peter Hand research.

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Range Feed, Cattle, Sheep Conditions In West Decline

FARGO, N.D.—Conditions of range feed, cattle and sheep for 17 reporting western range states Feb. 1 averaged below a year earlier, according to a report released by the North Dakota Crop and Livestock Reporting Service.

Range feed averaged 73% of normal for the 17 states Feb. 1 as compared with 76% a year earlier. This still was above the 10-year average 1949-1958, which was 72%.

Cattle for the state averaged 81% of normal, compared with 83% a year earlier and 80% for the 10-year average. Sheep were 82% of normal, comparing with 83% on Feb. 1, 1959, and 81% for the 10-year average.

Grazing conditions on western ranges during January were the poorest for any January since 1957.

Except in the Northern Plains, snow cover was above average and temperatures were below normal over the entire region. The combination of snow cover and cold weather sharply increased supplemental feed requirements and wintering costs.

Hay and other harvested forage supplies are still expected to be adequate in all except local areas, but there could be widespread shortages if the spring growth of new feed is later than usual, or if weather conditions are severe during the balance of the winter.

Much of the Northern Plains area, where forage supplies are shortest, has been favored with relatively light snow cover for the past two months, says the report. This has permitted maximum utilization of cured range feed and crop residue, thus conserving supplies of hay and other harvested roughage.

Moisture in Southwest

Additional moisture has improved the drouth situation in the Southwest, but a period of warm weather will be needed before any significant growth of new feed will be available. Heavy use of supplemental feed has maintained livestock in near average condition. Death losses so far this winter have been light. The health and vigor in the early drop of calves and lambs indicates an average or better calving and lambing percentage for 1960.

The drop in range feed conditions during January was largely seasonal, says the report. However, the reported average for Feb. 1 was well below the favorable level of the past two years. More supplemental roughage is being required because of poorer grazing conditions. This, along with higher prices for hay, has sharply increased wintering costs and the average per head charge to carry herds and flocks though the winter will be the largest since the 1956-57 season, the report says.

Except in California and North Dakota, cattle and calves are wintering in near average or better condition. Heavy supplemental feeding has largely offset the effects of unfavorable weather and declining range feed. The one point shrink in cattle condition during the month is seasonal and is the usual change expected between Jan. 1 and Feb. 1.

Soy Plant Shut Down

TOLEDO, OHIO — The soybean processing mill of General Mills, Inc., in Rossford has been shut down for about two weeks because of "unstable market conditions," it was announced this week. The plant has about 60 employees.

The company said the shutdown was necessitated by "extremely unsatisfactory processing margins" in operating the plant.

Drug for Medicated Dog Food Announced

NEW YORK—American Cyanamid Co. reports that the drug diethylcarbamazine soon will be made available to the feed industry for use in medicated dry dog food.

This was pointed out in connection with the recent announcement that Corn Products Co. has filed a petition with the Food and Drug Administration for issuance of regulations establishing a tolerance for diethylcarbamazine in dog food.

The drug will be manufactured by Cyanamid and offered under the registered name of Cypip diethylcarbamazine premix.

Cypip, when added to prepared dog food, will aid in the prevention and elimination of ascarids (large intestinal roundworms) in dogs of all ages, a Cyanamid spokesman said.

"Tests indicate best control when dogs are put on feed containing 30 mg. of the drug per pound and kept on it for life," the company said. "This not only clears up any existing infection but prevents reinfection even when dogs are heavily exposed to roundworms.

"Cypip is the first anthelmintic which has found acceptance as an additive for dog rations.

"The drug is completely stable in feedstuffs commonly used in dog food formulations, and effectiveness is not altered during processing of the dog food. The dosage recommendation is based on puppy and adult food intakes estimated by the National Research Council. The active ingredient fed at the recommended level provides at least a 33-fold margin of safety.

"Cypip is the only anthelmintic which may be continuously fed to dogs for both prevention and treatment of roundworm infections."

USDA TO BUY LARD

WASHINGTON—The U.S. Department of Agriculture has announced that lard purchases will be resumed. Approximately 32.6 million lb. were purchased late last year under this program. Purchases will be made with Section 32 funds, and the lard bought will be distributed domestically to needy persons and eligible institutions.

Offers will be considered only from vendors operating under federal inspection in order that products purchased may be shipped in interstate commerce.

Offers either by letter or telegram are due by 2 p.m. (EST) each Monday until further notice, beginning Feb. 29.

Burrus Mills Holds Series for Dealers

FORT WORTH, TEXAS — Executives of Burrus Feed Mills are holding a series of meetings with Texo feed dealers this month to discuss feed industry changes in the last three years.

"The meetings stress the proper promotion of feed volume for 1960," according to Wesley Ballmann and Charles Harris, co-managers of Burrus Feed Mills. Under discussion are customer relations, credit procedures, selling techniques and home office-dealer cooperation.

Future meetings are scheduled for Feb. 24, Conroe Hotel, Conroe, and Feb. 26, Gunter Hotel, San Antonio.

The meetings fill the entire day with discussions, films and lectures broken only by lunch.

Ingredient Demand Remains Inactive

Demand for feed ingredients was quite inactive again during the week ended Feb. 16. Oilseed meal prices were weaker, animal protein feeds dropped—in fact, the only price increase reported was in the millfeed market.

The following table, compiled by the U.S. Department of Agriculture, shows, in its comparison of average national prices from Feb. 9 to Feb. 16, the dullness prevailing in the ingredient markets:

Average Bulk Prices and Index of Weighted Prices*
(Dollars per ton)

	Feb. 16, 1960	Feb. 9, 1960	Change from previous week
OILSEED MEALS			
Prices at prin. mkts.:			
Soybean meal	64.95	66.30	—1.35
Cottonseed meal	61.20	62.65	—1.45
Linseed meal	73.90	75.30	—1.40
Copra cake or meal	77.25	72.25	+5.00
Peanut meal	59.00	59.50	— .50
Index	84.4	86.1	—1.7
ANIMAL PROTEIN FEEDS			
Prices at prin. mkts.:			
Meat meal	70.10	71.00	— .90
Tankage	69.15	69.80	— .65
Fish meal	105.00	105.75	— .75
Index	67.5	68.2	— .7
GRAIN HIGH-PROTEIN FEEDS			
Prices at prin. mkts.:			
Gluten feed and meal	49.00	49.40	— .40
Dist. dried grains	59.20	59.20	...
Brewers dried grains	45.60	45.75	— .15
Index	78.5	79.0	— .5
WHEAT MILLFEEDS			
Prices at prin. mkts.:			
Bran	39.35	39.10	+ .25
Midds. and shorts	39.10	39.30	— .20
Index	70.8	70.8	...
OTHER MILLFEEDS			
Prices at prin. mkts.:			
Hominy feed	40.90	41.40	— .50
Rice bran	30.50	31.50	—1.00
Index	63.1	64.1	—1.0
ALFALFA MEAL			
Prices at prin. mkts.	56.75	56.80	— .05
Index	109.2	109.3	— .1
MOLASSES FEEDING			
Prices at prin. mkts.	21.50	21.56	— .06
Index	64.0	64.2	— .2
ALL FEEDSTUFFS			
Index	78.1	79.2	—1.1
FEED GRAINS			
Prices at prin. mkts.:			
Corn	38.90	39.40	— .50
Oats	47.30	48.40	—1.10
Barley	42.50	42.80	— .30
Grain sorghums	36.40	37.50	—1.10
Index	63.9	64.9	—1.0

*Base period of index is 1947-49.
Source: Agricultural Marketing Service, USDA.

CAPITAL COMMENT

BY JOHN CIPPERLY

Food and Drug Law

White House announcement of the impending appointment of a committee of government scientists to examine farm groups' complaints over the actions of Arthur S. Flemming, secretary of health, education and welfare, in the field of enforcement of the food and drug law may be described as mostly window dressing.

The White House statement following the protests of the 14-group farm organizations reports that a supercommittee of scientists composed of government scientists will examine the validity of the farm group complaints, but at the same time the White House said that this does not mean that the committee investigation can in any way hold up FDA responsibilities in enforcing the law under which it operates.

Both sides may seem to have gained a victory.

The politically potent farm groups have gained formal recognition of their complaint against the highly publicized activities of Sec. Flemming, but at the same time they will be under the scrutiny of government scientists in the field of food additives, who are known to back restrictive restraints on the use of suspected carcinogens in food or animal feed.

Sec. Flemming appears to have gained a preliminary victory in the appointment of this committee since it in no way checks his drive to administer the FDA act vigorously.

Grain Storage

WASHINGTON — The grain storage industry is fighting a rear-guard action against the Symington committee attacks on charges for storage of USDA grain surpluses.

It now appears that local groups are appearing here before state congressional delegations to defend their positions. A Nebraska grain and feed group met with their congressional delegation to submit their ideas on this controversial storage payment deal.

It is most unfortunate that this budget situation must be washed out in a public laundry of a congressional committee. Storage costs of USDA surpluses are high, according to the original reports of Secretary of Agricultre Ezra Taft Benson. His recent statements have fractionated those reports down to per minute or per hour costs of storing surplus grains.

The Symington committee has reported profits in a magnitude which would enthuse even the old speculators in the 1920's. The trade reports, however, show that many warehousemen are working on low returns.

This controversy is an accountant's paradise.

William Kenney Dies

KANSAS CITY—William A. Kenney, 66, Butler, Mo., and a former Kansas City resident, died at his home following a heart attack.

Mr. Kenney was co-owner and operator of Kenney Bros. Grain Co., Butler, and a past president of the Missouri Grain, Feed & Seed Assn. Other activities included being national sales manager of the Union Central Life Insurance Co. and a former member of the Grain & Feed Dealers National Assn.

NO CHANGES IN MOST PRICE SUPPORTS

WASHINGTON — Price supports for new crop small grains and oilseeds will be the same as last year, except for corn, the U.S. Department of Agriculture announced this week. The support level for corn on a national average basis will be cut to $1.06 bu.

Last-year support levels for the other commodities were: Barley, 77¢; grain sorghums, $1.52 cwt.; oats, 50¢; rye, 90¢; soybeans, $1.85; flaxseed, $2.38; cottonseed, $38 ton on farm-stored seed and $34 on purchases from producers.

The corn support cut represents a 6¢ reduction from last year's national average level. This reduction largely reflects a drop in the parity price for corn since last year.

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Money, Manpower, Education Linked at Midwest Gathering

By GEORGE L. GATES
Editor of Feedstuffs

KANSAS CITY—Money, manpower and education were significant subjects of speakers at the Midwest Feed Manufacturers Assn. convention here Feb. 8-9.

Money entered the discussions in a banker's evaluation of the feeder financing picture and again in a management consultant's admonition to do a better job in selecting employees.

The industry's greater need for well-educated manpower was underlined, too, by university and college representatives who appeared to discuss the land grant college centennial, career exploration and industry-college cooperation in extension education.

Here are summaries of several of the convention talks (others were summarized in the Feb. 13 issue of Feedstuffs):

THE MONEY SITUATION—Time is right for a more conservative approach by feed manufacturers in financing feeding projects, and in turn the banker should and will adopt a more liberal approach to lending on projects of this kind, F. Phillips Giltner, vice president of the City National Bank & Trust Co., Kansas City, predicted. "I feel that a little correction either way will produce most desirable results for all parties concerned," he said.

Mr. Giltner commented that the feed industry has so completely dedicated itself to the business of selling feed that it has tended to place such liberal terms on financing that banks have been discouraged from any attempt to compete.

Liberal credit extension by manufacturers not only saps their financial strength but it creates a false concept of credit among producers, he said.

Bankers, on the other hand, have been traditionally reticent about extensive financing of flocks and herds, but attitudes should change so that they will seek out the good borrower who deserves credit for feeding projects, he said. "It certainly follows that a man who commands the respect of his community either financially or otherwise is the person with whom you want to be doing business anyway, and the local banker is in a better position to reach this conclusion than you are."

Mr. Giltner predicted that the cost of money will not go up in the coming year, at least, and he advised: "Take your time before entering into any commitments and determine that a sound profit can be derived from the money invested with funds from loans at the present cost. The entire money market as well as the stock market say that a degree of stability can be expected." This stability could be retained for as much as five years, in his opinion.

There are adequate funds available in the Midwest for sound financial investment, and borrowers can expect greater consideration in this area than in other areas, the speaker said.

Cattle Financing

Banks and other credit extenders generally are more inclined to take a liberal approach on margins for cattle feeding credit, he said, and thus more capital will be available to buy cattle now. Stocker and feeder prices are lower because of a general feeling that prices for fed cattle will be less this fall than a year earlier.

"The cattlemen themselves are in a cautious mood and now the credit people can well afford to encourage investment in cattle at these lower prices," he continued. "It is our opinion that the cattle prices have taken their adjustment and there will be no serious break in prices either this spring or this fall."

Mr. Giltner declared that the future of the cattle business is basically bright. "I think that the demand for beef will experience a paced growth over the next 10 years and that the experienced careful operator who devotes his full time to the business of raising or feeding cattle or both will be properly rewarded for his effort." He commented, too, that he expects more large cattle operations will take on a corporate structure because of capital requirements and tax situations.

"Banks and financial institutions will be in a position to extend even greater lines of credit because the success or failure of the operation will no longer hinge upon the know-how of one man," he said.

BETTER PERSONNEL SELECTION—Technical developments will be available to everyone in the feed business in formulation and plant facilities, and competitive advantage will be obtained largely in the excellence of personnel in the period ahead, Thomas H. Lawrence, Lawrence-Leiter & Co., Kansas City, told the feed men.

Mr. Lawrence, senior partner of a management consultant firm, stressed the importance of making careful selection of new employees with the help of psychological tests. "Tests are only one element in the selection process, but they can separate those who are not likely to make the grade from those who seem to be good risks," he said. "In this way we can reduce many of the cost factors of unfortunate selection and improper placement."

Mr. Lawrence made an analogy between hiring an employee and purchasing a piece of operating equipment for a feed plant. "There would be very little question about the advisability of checking the specifications of this equipment, finding out what its performance potential actually is, checking with other users of the equipment and running down every last detail of how it might affect your operating profitability. Let us consider this same approach in dealing with personnel matters."

Good people will be hard to find in 1960, he predicted, with fewer people giving up jobs voluntarily during the

(Turn to MIDWEST, page 102)

CHICKS FOR SUPPLY FLOCKS DECREASE

WASHINGTON — Domestic placements of pullet chicks for broiler hatchery supply flocks by leading primary breeders of broiler replacement stock dropped a sharp 21% during January compared with the same period last year.

The U.S. Department of Agriculture said placements dropped from 1,884,000 chicks in January, 1959, to 1,496,000 during January this year. Total placements (domestic plus exports) were reported at 1,657,000, compared with 2,124,000 a year earlier.

The placement data include pullet chicks sold during the month, plus the number of pullet chicks expected from eggs sold during the preceding month. Conversion from eggs to expected pullet chicks was made on the basis of 125 pullet chicks per case of hatching eggs sold. Primary breeders included in the USDA report account for a very large percentage of total supply of replacement pullets for broiler hatchery supply flocks. Sales of replacement pullets by these breeders provide an indication of the potential number of pullets available for addition to hatchery egg supply flocks several months before the pullets will actually move into the flocks, according to USDA.

Merck President to Address N.W. Group

MINNEAPOLIS—John T. Connor, president of Merck & Co., Inc., Rahway, N.J., will speak at a regular dinner meeting of the Northwest Feed Manufacturers Assn. Feb. 29 at the Calhoun Beach Hotel in Minneapolis. The meeting will begin with a social hour at 5:30 p.m.

J. T. Connor

Mr. Connor's topic will be "An Approach to Management Effectiveness."

Mr. Connor, who has a background in law, government and industry, became president of Merck in 1955. Earlier he served as general attorney, secretary and counsel, vice president and general manager of the Merck Sharp & Dohme international division. Before joining the company he was with a New York law firm and in government service, including a position as special assistant to the Secretary of Navy. He is a graduate of Syracuse University and Harvard Law School. Mr. Connor is chairman of the Manufacturing Chemists Assn. and is active in many other civic and business groups.

South's Storm Causes Some Broiler Losses

Scattered reports of broiler and chick losses followed the snow and ice storms which slipped into some parts of the South last week, but, for the most part, broiler operations were said to have suffered only minor storm damage and the results had no effect on broiler markets.

Some bird mortality was noted in Mississippi, for example. The worst snow and ice in nine years in that state were responsible for considerable losses of broilers and baby chicks. The storm resulted also in cancellations of packing plant orders because of delays in transportation.

The heavy weight of snow caused roofs of several broiler houses in Mississippi to collapse. At the Landrum broiler farm at McAdams in Attala County, about 7,000 two-day-old chicks were killed when a metal roof fell in. At Forest, Miss., one of Fred Gaddis' leased houses on the Roy Noble Lee place had a roof fall in and one of the Davis Brothers' houses at Pelahatchie also had a roof collapse. Many birds were crushed.

Mortality rate was reported heavy for young chicks because the snow and cold wave swept in suddenly. Loads of live birds brought to packing plants had losses when some of the birds froze to death on trucks.

Plants in the Forest, Miss., area had brief shutdowns because icy roads prohibited shipments of processed birds and made it almost impossible to unload live birds.

The only storm trouble reported from Georgia broiler areas was a delay in catching birds, caused by bad road conditions and lowering temperatures.

D. H. Grandin Dies In Mill Accident

JAMESTOWN, N.Y.—Daniel G. Grandin, 45, vice president and treasurer of the D. H. Grandin Milling Co. here, was killed recently when he was caught in a conveyor belt at the mill.

It was reported that he was helping make repairs on the sixth floor of the plant in an area damaged by a dust explosion and fire. (Feedstuffs, Feb. 13) Mr. Grandin was killed when his clothing apparently became caught in the conveyor powered by a 150-h.p. motor.

NFIA Disturbed by Proposed FDA Limits On Feed Ingredients

DES MOINES, IOWA — Disturbed at recent activities of the Food & Drug Administration proposal to set up limits on certain ingredients used in animal feeds, the National Feed Ingredients Assn. held an emergency meeting here to determine a course of action which can assure continued proper use of minerals in feeds to the benefit of the feed industry and farmers.

The meeting was called by William E. Noble, Oelwein (Iowa) Chemical Co., and presided over by Maurice E. Baringer, Oelwein Chemical Co., chairman of the scientific advisory committee. About 40 association members and interested representatives attended.

At the meeting, three general courses of action were agreed upon:

1. Write to FDA as an association and request a hearing.

2. Dramatize the need for individual members of the association and feed industry members to contact FDA to request reconsideration.

3. Consider contacting individual members of Congress who are concerned with enacting laws under which FDA operates.

Triggering the meeting was the publication by FDA in the Dec. 31, 1959, Federal Register of the proposed list of trace minerals for additions to animal feeds. (Feedstuffs, Jan. 30.) The list placed limits and conditions on use of certain trace minerals, particularly cobalt and zinc. Cobalt is restricted to use as a feed supplement for ruminants — cattle, sheep and goats. Zinc would be restricted to use as a feed supplement for swine and poultry only.

Interested persons are allowed 30 days to make written comments after Federal Register publication. FDA has pointed out that all food additives must be cleared for use before March 6 unless an extension is granted. Use of a food additive without a formal authorizing regulation or an extension of time after this date will cause the food containing it to be adulterated and illegal for shipment.

Exemption Reasoning

The statement submitted by NFIA following the emergency meeting claimed exemption from the Food Additive Amendment to the Federal

(Turn to NFIA, page 97)

Memphis Oilseed Meal Futures on Weak Side

MEMPHIS, TENN.—Oilseed meal futures developed weakness on the Memphis Board of Trade during the past week. All feed ingredients were reported to be moving slowly.

Cash protein oil meal business was termed sluggish in Memphis, with plenty of supplies and a lower price trend.

Oilseed meal futures were on the defensive at the middle of the period, following a rise earlier that was attributed to reports of shutdowns by processors. The easing tone was particularly noticeable in nearby options, which suffered the biggest losses.

Mixed feed business was said to be slow, with no relief in sight.

Pit observers said that processors are trying to rectify the poor conversion basis by shutdowns and a smaller crush. Still there seems to be no tightening of the product supplies, they added.

Memphis basis soybean oil meal closed Feb. 16 unchanged to $3 ton lower than on Feb. 9. Unrestricted soybean oil meal was 25¢@$2.20 lower and bulk solvent cottonseed oil meal was 25¢@$2.80 lower.

Trading volume for the period amounted to 4,000 tons of unrestrict-

Indecision Marks Initial Meeting On Storage Pact

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON—The two-day session between the 15-man negotiating committee of the grain warehouse industry and officials of the U.S. Department of Agriculture to discuss renewal of the Uniform Grain Storage Agreement was concluded on a note of indecision. However, it was agreed tentatively that the parties concerned would meet again on March 15 and 16.

There have been no precise discussion of rates, according to trade representatives who attended the meetings, despite the fact that Clarence Palmby, associate director of the Commodity Stabilization Service—now actively in command of the joint session—has stated publicly on two occasions that a lower level of storage rates within the structure of a new UGSA was indicated, and that warehousemen may be expected to assume greater storage responsibilities.

Other trade sources have remarked consistently that one of the high cost components of UGSA has been the higher-than-normal storage requirements imposed on warehousemen when holding government grain, compared with their normal storage responsibilities in commercial trade. This source contends that these "fringe responsibilities" are the cause of the high rates allegedly provided by UGSA.

Two major points currently disturbed the warehouse industry representatives following the end of their two-day meeting here with USDA officials:

First there is the vague—or open-ended—provision of the USDA proposal, which might make subsequent decisions by the Food and Drug Administration relative to contamination of Commodity Credit Corp.-storage grain the full responsibility of the warehouseman.

Another vitally important objection on the part of warehousemen concerns the level of foreign material permitted on CCC deliveries of corn and soybeans.

This provision might be discerned as reflecting the drive on the part of the Foreign Agricultural Service to tighten U.S. grade export standards to these two crops. Such a drive, according to trade sources, fails to consider the problems of corn and bean storage, a condition which is aggravated by the much heavier use of terminal facilities and intermediate movement of those commodities by CCC, which results in a larger percentage of foreign material in these crops when tendered to CCC.

Georgia Broiler Plant Decides to Shut Down

GAINESVILLE, GA. — Piedmont Poultry Exchange, a broiler processing plant, closed down this week until further notice to conserve assets, according to announcement by T. H. Paris, one of the partners in the firm.

Mr. Paris said the 18-year-old firm was in no financial difficulty but has been operating at a non-profit basis due to "two-price system."

He cited the "high" price of broilers on the auction, where bulk of live broilers were purchased and the "low" price listed by the U.S. Department of Agriculture at which the firm was obliged to sell. The plant employed between 150 and 175 persons.

BUYS MILLING PLANT

VERSAILLES, IND.—Bill Russell manager of Nading Grain Co. at Greensburg and Waldron the last 25 years, has purchased the Friendship (Ind.) Milling Co. plant.

Nitrate-Vitamin A Problem In Cattle Feeding Discussed

By ROGER BERGLUND
Feedstuffs Managing Editor

BOZEMAN, MONT. — A development of significance to livestock men, cattle feeders and feed men who supply them was brought out in program discussions and conversations during the recent Montana Nutrition Conference at Montana State College.

The discussions touched at least briefly on an increasing number of apparent vitamin A deficiencies in fattening cattle in the Corn Belt area. And this was noted in connection with a conference report on dangerous amounts of nitrate nitrogen in forages in Montana.

It was indicated that there now may be low levels of nitrate in silages, and what seems to be a vitamin A deficiency has been observed in cattle fed such silage in corn areas.

The point on nitrate in silage and vitamin A deficiency was mentioned by Dr. A. L. Neumann, head of the beef cattle division at the University of Illinois and a Montana conference speaker, after a Montana chemist had presented information on the use in Montana of grain hays which in some cases contain dangerous amounts of nitrate.

While grain hay in Montana and corn silage in Illinois are two different things, it appeared that there are some related problems.

Also, the discussions pointed up the fact that some nutritionists have commented recently that they have observed responses from higher than normal levels of vitamin A in cattle supplements. And it has been reported that there has been increased vitamin A fortification of cattle feeds by feed firms in some areas.

The nitrate discussions raised the point that when excess nitrate gets into the ruminant, there apparently is, during the digestive process, some interference with conversion of carotene to vitamin A, which could result in the apparent vitamin A deficiencies which have been reported.

In addition to the nitrate question, some nutritionists have said that there is a possibility that recommended vitamin A levels are lower than actual optimum levels. Also, they observe that nutritionists have been giving a lower and lower conversion efficiency of carotene to vitamin A."

"New Look"

At any rate, some say, vitamin A requirement levels may need "a new look."

Speaking of a new look, the title of a talk by Dr. Neumann at the recent Illinois Nutrition Conference was "Another Look at Vitamin A in Cattle." (This report was summarized in the Feb. 13 issue of Feedstuffs.)

The nitrate discussion at the Montana conference was presented by Dr. E. E. Frahm of the college's chemistry department.

Dr. Frahm pointed out: "Nitrogen is always present in growing plants in the form called nitrate. As plants grow and reach maturity, usually most of this form of nitrogen has been converted to other forms. When crops such as oats are harvested for hay at a succulent growth stage, the nitrate content can be so high that the cured hay in livestock rations causes decreased milk production in dairy herds, abortion in cows and, in extreme cases, death in livestock. High nitrate content is also a common occurrence in crops subject to periods of low soil moisture and high temperature. Dangerous amounts have been found in barley and wheat hays, drouth-stunted corn and in weeds of weedy pastures in high organic matter soils.

"Nitrogen in the nitrate form is not believed to be the harmful agent. In cattle and sheep during digestion the nitrate is reduced to nitrite, which is the poisonous form. Also, there is the possibility of this same change — nitrate to nitrite — taking place in hays soaked as a result of rain or melting snow on an open stack.

"Nitrate nitrogen analyses are usually reported as the compound potassium nitrate. Research has established these general levels listed and suggested feeding procedures:

". . . 0 to 0.5% potassium nitrate, dry matter basis—No danger if livestock on adequate ration and have been on such a ration.

". . . 0.6 to 1.5%—Forages can be fed but must be used with caution. Nitrate content in the ration is reduced by mixing nitrate-free forage with the toxic forage.

". . . 1.5% and higher—Feeding of such forage is not recommended. Death of some livestock can result."

Dr. Frahm said that, in addition to use of nitrate-free forage with forages in the dangerous range of nitrate content, high energy feeds are sometimes included. Also, it may be noted that he mentioned that vitamin A supplements have been used.

At the conclusion of Dr. Frahm's report, Dr. Neumann said that there apparently is some nitrate in the stalk in corn silage now. And he mentioned that some death losses have been observed.

With the low level which is in some silage, feeders and nutritionists are observing what seems to be a vitamin A deficiency.

Illinois Comment

In his Illinois conference talk, he said that at first it was thought that the cases had been wrongly diagnosed, especially since the cattle were receiving rations which often contained large quantities of corn silage or hay of at least average quality along with a full feed of corn—rations normally adequate in providing vitamin A. However, he said, when the problem occurred in university experimental cattle also, it was known that the diagnoses were correct. One of the possible reasons for the problem, he said, is that substances in the corn silage or high moisture corn interfered with conversion of carotene to vitamin A by the cattle.

It has been said that certain aspects of corn production may be involved. Research in this area is understood to be under way but has not yet been reported.

Dr. Neumann commented on the use of carotene from alfalfa meal and stabilized synthetic A in treating the university animals which showed

(Turn to VITAMIN A, page 102)

Delmarva Broiler Prices Slip

SALISBURY, MD.—Broiler prices slipped slightly in Delmarva last week.

A total of 3,373,000 birds went to market during the week that ended Feb. 13. That's 11% over the previous week and 2% over the corresponding week of last year.

The average price received slipped from 18.23¢ to 18.05¢. Except for the week of Jan. 8, that's the lowest it has been this year, officials of the Maryland-Delaware Crop Reporting Service said.

Hatcherymen in the 22 states that reported set 48,134,000 eggs during the past week—2% above the previous week but slightly below the corresponding week a year ago.

Fifteen of the reporting states noted increases in settings, but Alabama, Maine, Mississippi and North Carolina accounted for 83% of the total increase for the 22 states.

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FAIRBURY, ILLINOIS

Egg-Price Hearing Set to Start Feb. 29

WASHINGTON—An egg-price hearing here has been set for Feb. 29-March 4, according to Lester Johnson (D., Wis.), chairman, House Agriculture Poultry Subcommittee.

Mr. Johnson said witnesses will include spokesmen of the Commodity Exchange Authority, the Agricultural Marketing Service, producers and distributors.

OPPOSITION

(Continued from page 1)

every food or chemical additive used in raising or feeding of birds or animals from which such meat is derived.

Introduction of the legislation follows a previous announcement by a New York legislator, Sen. Frank J. Glinski of Buffalo, that he would offer such a bill. (Feedstuffs, Dec. 5.)

"This legislation, if approved, would place an impossible burden on farmers, feed manufacturers, meat and poultry processors and all meat wholesalers and retailers," AFMA declared.

"AFMA and other feed associations, along with individual feed manufacturers, must assume the obligation and responsibility to vigorously oppose this proposed New York legislation. Basically, the philosophy behind this proposal can lead consumers to believe that additives are being used in feeding livestock that are unsafe and a menace to public health. Our industry and additive suppliers must refute this erroneous insinuation."

The bulletin notes that there already are ample safeguards to assure that meat is wholesome and nutritious and that feed and feed additives are subject to both state and federal regulations.

AFMA said it would appear that the extreme and unrealistic New York legislation would have little or no chance of being passed, but it was noted that such proposals can have special appeal to vociferous minority groups. The association said it would help muster opposition on the part of other groups affected by the proposal and would help bring the proper facts before the legislators.

The proposed legislation which has been referred to senate and assembly agriculture committees, states: "No meats, cattle or poultry designed for human consumption in this state shall be sold or kept or exposed for sale in this state unless there is affixed thereto a tag which shall state the amount and kind of every food or chemical additive used in the raising or feeding of such cattle and poultry or of the animal from which such meat is derived and a representation that no such food or chemical additive is or may be productive of cancer in human beings. The commissioner shall have power to adopt and amend from time to time rules and regulations prescribing the kind and quantities of food and chemical additives which may safely be fed to cattle, poultry and other meat animals. . . ."

DRUG STATUS

(Continued from page 1)

March 6 date. Cases of prior sanction or recognition of safety will continue to exist.

Thus, explained FDA officials, the current situation will not change just because of the final effective date of the food additives amendment. While present restrictions will continue unless a change is made in the law or regulations, there will not as of this time be additions to these particular restrictions.

In the case of stilbestrol, for example, previously cleared uses will continue to have clearance, but new uses will not be permitted. Nor can major formula changes be made if a supplemental new drug application is required.

However, if the law is changed, as has been proposed, stilbestrol again would have full clearance for use since no residues have been found in meat.

Most of the arsenicals used in feeds are "old drugs" and are generally recognized as safe for indicated uses. Those classed as old drugs may continue to be used and new uses also are permitted in many instances. However, FDA said that certain restrictions on formula changes in "new drug" feeds will continue if arsenicals are involved. For example, if a person sought a new use of a coccidiostat which was a new drug in his poultry feed, he could not get such a change cleared if an arsenical also were involved in the feed. That is, there continue to be some formula restrictions where supplemental new drug applications are required.

However, as announced some time ago, certain minor changes in such feeds, where the question of "safety" is not involved, are permitted.

A few arsenical products are classed as new drugs and as such are not generally recognized as safe. At present there are restrictions on any new uses of them, and it may be that food additive regulations will eventually have to be provided for them if they are to have further use. However, these same restrictions do not apply to the old drug arsenicals. And FDA is said not to be contemplating any action to remove organic arsenicals from use.

In fact, it is hoped that the arsenical question in general can be resolved before long because organic arsenicals have not been regarded as suspected carcinogens except by association. It is inorganic arsenicals, not used in feed, where the question was raised in regard to carcinogenic activity. Organic arsenicals have not been shown to cause cancer when ingested.

Meanwhile, FDA has been working on certain lists of substances which are generally recognized as safe under food additives amendment. The industry is familiar with the recent proposal on trace minerals for feeds, to which there were objections. However, at this time, it does not appear that any changes in feed ingredients need be considered just because of the March 6 date.

And where the Delaney clause is interpreted to apply, the situation will continue as it has been, at least for the time being.

Regarding the "white lists" of substances which are generally recognized as safe in foods and feeds, FDA has noted that it has begun attempting to list substances which are believed exempt from the food additives amendment because of this recognition. However, it is pointed out that it would be nearly impossible to list at this time all ingredients that are exempt. Therefore, just a start has been made now. And there have been no instances cited where ingredients being used would be ruled out just because they are not yet on the list.

As noted by some, under the law, substances which are generally recognized as safe are exempt even though they may not yet be on a list.

And in the case of many drugs, prior sanctions or recognition of safety apply, and the food additives amendment has no new effect at this time on those who are using the drugs.

MARITIME

(Continued from page 1)

000 operating loss in the first half of 1959 and that the third-quarter balance sheet indicated a Maritime capital deficit of $1,145,988.

The letter stated that the primary cause of the losses was that Maritime had become involved in a substantial volume of poultry and broiler feed business and that the broiler market had "utterly collapsed," with consequent inability of many growers to meet their obligations.

Urban Milling said in the letter that Marine Trust's proposal called for Urban to sell its position as a creditor of Maritime for the sum of $50,000 and to assign its position as a Maritime stockholder to Marine.

"The offer was presented with the explicit understanding that if this company did not accept the terms proposed, Marine Trust would cease financing Maritime," the Urban letter to stockholders continued.

"Your directors were advised that if the Marine Trust ceased financing Maritime, it was inevitable that the company (Maritime) would go into bankruptcy. . . ."

Urban's letter to its stockholders also disclosed that Urban directors at the end of 1959 wrote off as "worthless" the stock in Maritime which Urban had acquired in exchange for 40,000 shares of Urban stock.

At the same time, the letter continued, Urban directors took the position that Urban Milling's position as a Maritime creditor was "partially worthless." They said note obligations totaling $850,000 were "worth no more than $400,000."

Urban Milling, the letter continued, decided that it could not and would not provide additional financial assistance to Maritime and that the possibility of selling Maritime to "a strong outside organization" should be investigated.

The letter said Marine Trust and a Philadelphia certified public accountant placed in Maritime as its principal management official "have consistently opposed both an audit of Maritime" and "any efforts whatsoever to find a buyer for the company or its assets."

The Urban letter said Marine Trust "was and is" the principal creditor of Maritime. The letter told of Marine last spring increasing its term loan to Maritime by $200,000, "bringing the total term loan obligations of Maritime to Marine to $520,000."

Urban Milling, at the same time, made additional loans of $450,000 to Maritime, bringing the total note indebtedness of Maritime to Urban to $850,000.

"As part of these arrangements, Maritime gave Marine Trust a collateral mortgage up to $1 million as additional security toward all outstanding obligations of Maritime to that bank," the letter explained.

"And Maritime gave this company collateral junior mortgages up to $700,000 to secure the indebtedness to this company. . . ."

The Urban letter said also that a "very serious effort" was made by the company to work out a re-organization plan with Marine for Maritime, but that these efforts "ultimately collapsed."

Directors Approve Severance

According to the stockholder letter, directors of Urban had "unanimously approved" the severance of all relations between Urban Milling and Maritime upon Marine's $50,000 payment to Urban "provided only that this could be accomplished without forfeiting the tax loss for this company (Urban)."

Peter J. Rybka, an international vice president of the American Federation of Grain Millers (AFL-CIO), said about 80 production and maintenance workers at Maritime's plant in Buffalo were idled by the shutdown. In recent years, he said, the mill employed some 180-200 workers, a figure that "has been steadily reduced."

The union said it may take several steps "to focus public attention on the situation" brought about by the closing of the Buffalo mill. These steps, union officials said, include contacting Gov. Rockefeller, asking area legislators in Albany and Washington to investigate the shutdown, suggesting that Marine Trust and Urban stockholders resume negotiations and requesting Marine Trust to reopen the feed mill immediately.

Mr. Wilcox reported that the Seaford mill has a feed production capacity of 500 tons and has had 12 employees.

CHICKS

(Continued from page 1)

duction of broiler chicks in January was up 6% from a year earlier. The month's total was 160,709,000. The February hatch also is expected to be larger. The number of broiler-type eggs in incubators on Feb. 1 was 4% larger than a year earlier. (See table for regional variations.)

The state and regional figures on the hatch of egg-type chicks show that production is down sharply in the traditional farm flock areas of the north central states, reflecting the very low egg prices which have prevailed for some time. However, other sections of the country also show sharp declines. Cutbacks are less in the West, where egg prices recently have been more favorable than in eastern and midwestern areas. (See tables for details.)

Production of all chicks in January was 184,396,000—2% below the number produced in January last year.

Broiler and Egg-Type Chicks Hatched by Commercial Hatcheries

(000's omitted)

State and division	During Broiler-type 1959*	During Broiler-type 1960*	Egg-type 1959*	Egg-type 1960*
Maine	4,664	4,625	399	321
N. Hampshire	1,480	1,016	375	200
Vermont	14	0	31	30
Massachusetts	1,242	746	1,310	886
Rh. Island	226	210	59	8
Connecticut	3,497	2,751	1,048	680
N. E.	11,122	9,368	3,222	2,125
New York	510	730	1,450	1,080
New Jersey	1,320	880	2,180	900
Pennsylvania	4,419	4,740	3,190	2,315
M. A.	6,249	6,350	6,820	4,295
Ohio	1,300	1,200	1,000	800
Indiana	4,951	5,480	1,308	1,144
Illinois	927	654	1,382	896
Michigan	800	520	750	410
Wisconsin	1,730	1,435	375	183
E. N. C.	9,708	9,289	4,815	3,433
Minnesota	240	390	655	285
Iowa	400	400	930	420
Missouri	5,398	6,119	327	255
No. Dakota	0	0	0	0
So. Dakota	0	0	147	52
Nebraska	110	71	664	195
Kansas	320	270	320	230
W. N. C.	6,468	7,250	2,943	1,437
Delaware	6,565	5,830	**	**
Maryland	7,754	11,360	109	43
Virginia	6,719	6,561	438	219
W. Virginia	867	786	**	**
No. Carolina	10,356	12,020	412	299
So. Carolina	1,796	1,666	393	318
Georgia	26,116	28,918	1,967	1,017
Florida	1,346	1,508	1,120	994
S. A.	61,519	68,649	†4,480	†2,897
Kentucky	1,500	1,000	105	100
Tennessee	3,550	3,300	650	450
Alabama	11,254	12,626	733	363
Mississippi	8,303	10,043	485	268
E. S. C.	24,607	26,969	1,973	1,181
Arkansas	12,026	12,872	782	171
Louisiana	2,064	1,733	335	198
Oklahoma	910	775	380	300
Texas	8,833	9,396	2,191	1,528
W. S. C.	23,833	24,776	3,688	2,197
Montana & N. Mex.**	1	1	20	22
Idaho	287	298	136	82
Wyoming	0	0	0	0
Colorado	37	47	137	110
Arizona	55	55	152	70
Utah	186	235	218	180
Mountain	566	636	663	464
Washington	1,278	1,305	1,006	660
Oregon	1,432	1,276	332	297
California	5,092	4,841	5,485	4,701
Pacific	7,802	7,422	6,823	5,658
U. S.	151,874	160,709	35,427	23,687

*Preliminary. **Combined to avoid disclosing individual operations. †South Atlantic total includes Delaware and West Virginia.

Chicken Eggs in Incubators Feb. 1, 1960

Geographic divisions	% change from Feb. 1, 1959 Broiler-type	Egg-type	Total eggs
New England	—20	—31	—23
Middle Atlantic	..	—45	—28
E. N. Central	— 9	—36	—24
W. N. Central	+ 3	—51	—33
South Atlantic	+ 9	—49	+ 3
E. S. Central	+10	—47	+ 4
W. S. Central	+ 2	—40	— 5
Mountain	— 1	—24	—16
Pacific	..	—16	— 9
U. S.	+ 4	—40	— 9

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Livestock Feeding Developments Outlined at Montana Conference

By ROGER BERGLUND
Feedstuffs Managing Editor

BOZEMAN, MONT. — With livestock feeding expected to show a continuing increase in Montana and other Northwest states, feed men in the area were brought up to date last week on some of the latest developments in the feeding and finishing of cattle, lambs and swine.

The occasion was the annual Montana Nutrition Conference, held Feb. 8-9 at Montana State College.

As supplies of local feed grains have grown and western as well as other markets for meat have increased, prospects for more livestock feeding in the region have improved. More feeding of cattle and swine has been encouraged, to supplement the traditional range operations.

Much of the nutrition conference program dealt with recent research on cattle, lamb and swine feeding, and the discussions included reports on pelleting, various additives, barley use, protein supplementation and other developments.

Some important poultry developments also were brought out.

Approximately 150 persons were on hand for the conference, which was sponsored by the college in cooperation with the Montana Feed Manufacturers and Dealers Assn. and the American Feed Manufacturers Assn. Several guest speakers from industry and colleges joined the Montana staff in presenting the reports.

Just some of the points noted in talks were these:

• The NRC recommendation of 2.25% calcium in laying rations is not adequate for production of eggs with maximum shell quality.

• Maintenance of a relatively uniform temperature in a laying house as compared with normal temperature fluctuations has brought significant improvement in egg production and feed efficiency.

• Pelleting of complete rations for ruminants does not produce favorable results with high concentrate levels, but it may pay with lower concentrate.

• Antibiotics may be fed to good advantage to cattle in feedlots. One speaker said the place of antibiotics in rations for fattening lambs remains questionable, while another cited additional gains and reduced death loss as a result of feeding antibiotics to lambs. The discussions also included reports on feedlot trials with zinc bacitracin for cattle.

• Tranquilizers do improve results in cattle and lamb rations in field trials and commercial feedlot operations, although under experiment station conditions many of the results have not been favorable.

• Creep feeding of lambs is a must under intensified sheep programs with early weaning.

• Recent Montana research with cattle has included studies showing improvements in various types of rations from the use of certain additives and supplements, including diallyldiethylstilbestrol, diethylstilbestrol, an enzyme and phosphorus.

• Research on pelleted barley rations for swine shows the importance of lysine in protein supplements or as an additive.

• Possibilities in the use of mustard seed meal and safflower meal as protein supplements have been shown.

Summaries of talks follow:

INFLUENCE OF HIGH CALCIUM LEVELS UPON EGG PRODUCTION AND EGG SHELL QUALITY—Dr. C. F. Petersen of the University of Idaho summarized three Idaho experiments to determine calcium requirements for maximum shell quality of high producing White Leghorn hens. Three experiments were conducted over a three-year period, 1956 to 1959. Egg shell quality was measured by specific gravity technique, measurements being taken during alternate weeks throughout all experimental periods. The University of Idaho strain of White Leghorn hens in their first year of egg production was used in all experiments.

Dr. Petersen noted that factors studied included laying house temperature, calcium levels, calcium-phosphorus ratios, forms of calcium, free choice vs. controlled calcium intake and the addition of dried whey to experimental diets.

From the experimental results, it was concluded:

(1) The NRC level of 2.25% calcium is not adequate for production of eggs with maximum shell quality.

(2) Under environmental temperatures of less than 70°, 3.75% calcium appears to be adequate for good shell quality.

(3) Under environmental temperatures of 70° or greater, calcium intake of 4.50 to 5.00% appears necessary.

(4) Supplying all the calcium in the ration is more efficient than permitting hens to have free access to whole oyster shell.

(5) High calcium levels do not appear to influence or reduce egg production.

(6) Very high levels of calcium, for instance 4.00 to 5.00%, do result in increased feed consumption and pounds of feed required to produce a dozen eggs.

(7) Laying house temperatures above 70° have a detrimental effect on egg shell quality.

The decision to use these higher levels, Dr. Petersen said, must depend upon temperature conditions and the severity of the egg shell problem in terms of net return to the producer.

It was indicated that a large part of the feed industry has changed its calcium level recommendations in laying hen diets, increasing levels above the NRC recommendation of 2.25%.

VALUE OF BARLEY IN LAYING RATIONS AS INFLUENCED BY PELLETING, ENZYME ADDITIONS AND LAYING HOUSE TEMPERATURES—Several points of interest were brought out by Dr. C. F. Petersen of the University of Idaho in a talk on research covering these subjects. One of the points of special interest was a study which showed the influence of uniform environmental temperature. Following are just brief summaries of some of the Idaho work with barley:

Use of Barley in the Mash to Be Fed with Whole Grain—Several experiments have been conducted, and results indicate that barley can be used successfully in this type of feeding program.

Influence of Two Energy Levels When Fed Under Usual Laying House Conditions—This experiment was conducted to compare a ration containing a high level of barley and a low energy content (660 calories) with a high-corn ration containing over 900 calories per pound. The low energy ration, unpelleted, did not permit production equal to that on the high energy ration. When the ration was fed as crumbles, which permitted greater consumption, production was equal to the high energy ration. The high energy ration also resulted in greater body weight gain, reduced feed consumption and resulted in less feed per dozen eggs. Feed efficiency with crumbles was about 4% better than with mash. The study indicated that when corn costs about

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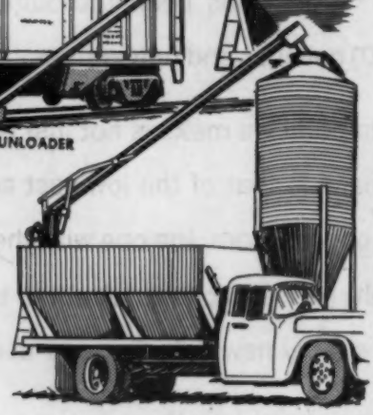

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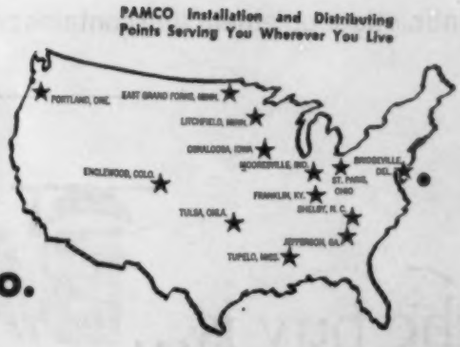

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$60 ton, barley would prove economical to use when the price was $10 or more lower.

Influence of Laying House Temperature on Egg Production and Energy Requirements—An experiment was designed to study ability of rations of either high energy (corn) or low energy (barley) to promote egg production when fed to hens under varying temperature conditions. The first temperature treatment was a uniform laying house temperature varying from 55 to 60° F. The second temperature condition was that where temperature was permitted to fluctuate in a normal way in a well insulated, well ventilated house. Each energy level was fed as mash and crumbles.

Egg production was influenced by energy level, form of feed and temperature. Of greater significance than either energy level or form of feed was the influence of a uniform temperature. This resulted in a 3.3% difference in egg production and a 10.3% advantage in feed efficiency. The difference in feed efficiency was a result of both increased egg production and reduced feed consumption. The uniform temperature, which included some supplementary heat, also resulted in less surface litter moisture.

Influence of Enzyme Additions to High Barley Rations for Egg Production—Results indicated a slight beneficial effect from addition of an enzyme, Dr. Petersen said. Egg production was improved 4%, and feed efficiency also was benefited.

Windowless Housing—Results indicated little difference between windowless housing and the presence of natural light.

Safflower Meal in Poultry Rations—Research indicated that safflower meal could be used successfully in place of part or all of the soybean meal in feeds for replacement stock. It also was used successfully in rations for egg production. The rations also included some fish meal and meat meal. Dr. Petersen said it would not be desirable to replace all of the protein sources with safflower meal.

EFFECT OF PELLETING LAYING RATIONS CONTAINING CORN, BARLEY OR WHEAT MIXED FEED—J. T. Gillingham of Montana State presented a preliminary report, based on three months' observations, on the effects of pelleting laying feeds containing these various grains.

Summarizing the work, Mr. Gillingham reported:

Corn and barley are of equal value as base grain in laying rations. Pelleting did not improve the feeding value of either. Wheat mixed feed produced a like number of eggs, when it was pelleted, but only half as many when fed in mash form.

Pullets consumed about 50% more feed when fed wheat mixed feed rations in pelleted form than when fed corn or barley rations. They evidently could not eat sufficient quantities of the wheat mixed feed mash to maintain adequate egg production.

Feed conversion to eggs was about equal for corn and barley rations and was less efficient for wheat mixed feed rations. Pelleting improved only the wheat mixed feed rations.

Egg weights and albumen scores were significantly higher in the wheat mixed feed rations. The higher protein and vitamin content of wheat mixed feed may contribute to higher quality eggs.

Body weight gains of pullets on barley rations were greater than those on corn. Pullets on wheat mixed feed mash lost weight. Those on wheat mixed feed pellets gained more than those on corn rations.

PELLETING ROUGHAGES AND COMPLETE RATIONS—Various aspects of the pelleting of rations for ruminants, beef cattle in particular, were discussed by Dr. A. L. Neumann of the University of Illinois.

Numerous tests, it was noted, have shown increased gains and improved feed conversion as a result of pelleting roughages. On the other hand, rations containing about half concentrates are only slightly improved by pelleting, Dr. Neumann said, and rations with more than two thirds concentrates are not affected at all or are adversely affected by pelleting.

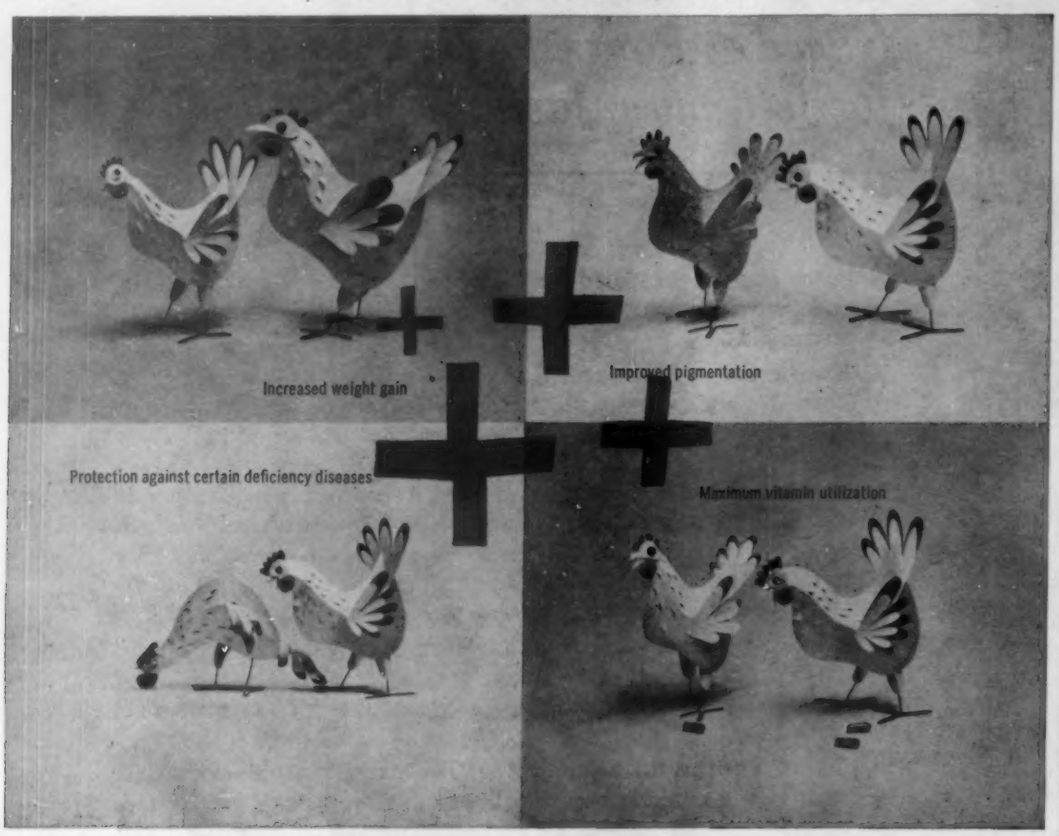
The speaker said he feels that pelleting straight roughage is mostly at a standstill until there is a field pelleter so that it will not be necessary to grind roughage. Pelleting of complete rations, he said, also may be out in cases of high concentrate rations, but with lower concentrates, pelleting can improve results and it may pay to pellet.

Dr. Neumann went into various factors which may explain improved results from pelleting high-roughage rations, and he commented that the most important explanation seems to be increased feed intake.

He said that passage rate of the feed is increased with finely ground and pelleted material. Some may leave too fast and there can be lower digestibility, but extra feed intake more than offsets this.

Commenting on the question of parakeratosis as a result of pelleting, he cited one study in which parakeratosis was found in cattle not fed pellets as well as in those getting pelleted rations. Some persons, he said, think that this may not be an important problem and that incidence may not actually be greater in pellet-fed animals.

Dr. Neumann went on to review an Illinois study on the effect of age



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of cattle on the response to pelleting. Various levels of roughage were used in rations for calves, yearlings and two-year-olds.

With calves, as roughage content was reduced, total feed intake was reduced. With older cattle, peak intake was at medium levels of roughage. Data on gains showed that for calves, as concentrate level was increased, rate of gain increased. With yearlings and two-year-olds, maximum gain was at a roughage level of 40%. So, increasing corn beyond 60% did not help gains. As for feed efficiency, the feed/gain ratio was reduced as roughage content was increased for calves; on older cattle, 60% concentrate was about as good. With calves, concentrate-roughage ratios of 40-60 and 60-40 reduced feed cost. For yearlings, gains were cheapest on a 60-40 ratio. Increasing concentrate content in calves improved grade. With yearlings grade was about maximum at 60% concentrate.

A 60-40 ratio seemed about best for heavy cattle, while higher concentrate levels could be used for calves.

ANTIBIOTICS FOR RUMINANTS—Summarizing a report on antibiotics for ruminants, Dr. R. C. Klussendorf of Commercial Solvents Corp., Terre Haute, Ind., said: "Antibiotics may be fed to good advantage to cattle in feedlots, with the expectation that feed conversion and rate of gain will both be consistently improved by 3 to 4%, thus providing gains at 1 to 3¢ per pound less. There will also be some improvement in general condition but not in carcass quality. Some advantage may be observed if such diseases as the shipping fever complex, foot rot and/or liver abscess formation are prevalent.

"The value of antibotics in feeding dairy calves is unquestioned because of the control of calf scours.

"The place of antibiotics in the rations of lactating cows and fattening lambs remains questionable."

Dr. Klussendorf's talk included some of the first public reports on the use of zinc bacitracin in cattle feeding. He reported on a California feedlot (Kern County Land Co., Bakersfield) in which 35 mg. of the antibiotic were fed per head daily in a 91-day trial involving 120 head. Average daily gain, feed efficiency and cost per pound of gain (feed at $50 ton) were reported as follows for the Baciferm-treated lot: 3.21 lb., 9.56 and 23.9¢, respectively. Corresponding figures for the control lot were 3.12 lb., 9.96 and 24.9¢. The supplemented cattle also were reported to have shown more "bloom" and to have been in better general condition.

Dr. Klussendorf also reported on a 133-day California test (John Lebsack Feedyards, Blythe) in which treatment was at the 80 mg. per day level. He listed daily gain, feed efficiency and cost-per-pound-gain data as follows: Baciferm, 2.35, 9.50 and 21.83¢; oxytetracycline, 2.31, 9.66 and 22.21¢; no treatment, 2.27, 10.72 and 24.37¢.

The speaker also discussed stress, and he commented on "broad vs. narrow spectrum" antibiotics. Commenting on regulatory problems, he said that the top job in the federal control field is a political appointment, and he suggested that persons interested also must work politically. Each person in the industry and agriculture should write to his congressmen, Dr. Klussendorf suggested.

TRANQUILIZERS IN SHIPPING AND FEEDING OF LIVESTOCK—Dr. Ralph P. Soule, Jr., of the Farmers Union Grain Terminal Assn., St. Paul, representing the American Feed Manufacturers Assn., presented a report on tranquilizers.

He discussed some research on injections and concluded that "injections of tranquilizers do play a part in overcoming excessive shrink and reducing stress when environmental adjustment is involved." He emphasized that they should be administered only by veterinarians.

Much of Dr. Soule's report dealt with use of minute levels through the feed as a growth stimulant. He showed a considerable amount of data on use of hydroxyzine (Tran-Q) in beef and lamb rations. Work by Pfizer researchers showed an improvement in average daily gain of 10.1 and 8.1%, respectively, for lambs and cattle on fattening rations. Dr. Soule also presented slide data on several field trials. The tranquilizer was fed alone and in combination with oxytetracycline and stilbestrol.

"Tranquilizers do increase gain and improve feed efficiency in cattle and lamb rations in field trials and commercial feedlot operations," Dr. Soule said. "Under experiment station conditions, many of the results in ruminant rations have been unsuccessful in growth and feed efficiency.

"It has been the author's observation that commercial feedlots have received positive results in most experiments.

"Cattle received should be started on a tranquilizer experiment immediately instead of holding for a week or two prior to initiating an experiment.

"The level of Tran-Q recommended is 2.5 mg. per head daily for both cattle and lambs. It is the author's opinion that 5 mg. is a better level to use.

"The present status under FDA allows Tran-Q to be added to beef cattle rations when no other additive is present. However, due to recent FDA rulings, new drug applications are being held up."

HIGH-ENERGY ENSILED CATTLE FINISHING RATIONS — Dr. A. L. Neumann of the University of Illinois said a big change is taking place in the Corn Belt. Cattle feeders are getting away from pasture

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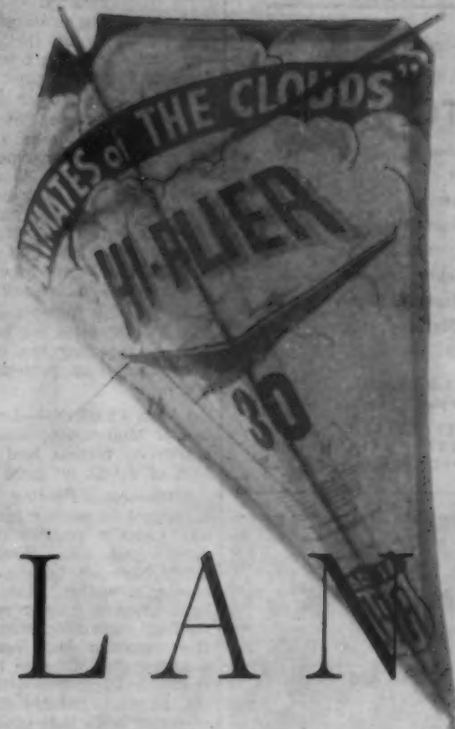

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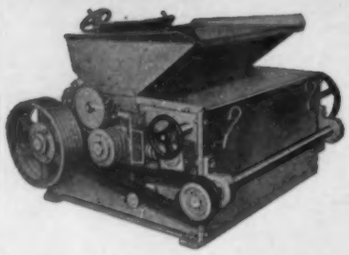

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FEEDSTUFFS
LEADER IN THE FIELD

feeding and are using a year-round drylot system. No pasture is used, but silage is made.

Dr. Neumann told of Illinois experiments with high-energy or enriched silages. The objective, he said, is to develop a complete finishing ration for beef cattle which makes maximum use of corn and alfalfa, harvested and combined in such a way as to incorporate experimental findings of many stations in the field of high-moisture corn harvesting and grass silage making.

Various combinations of fresh chopped alfalfa and shelled corn have been tested, ranging from 80:20 mixtures to 50:50 mixtures.

"In at least a half dozen tests," said Dr. Neumann, "high-energy silages have been full-fed from the outset without founder. One can readily see how this type of feed can be worked into an automatic system. . . . One storage unit suffices for the entire ration. The level of the corn in the mixture could be varied as desired so long as the mixture contains at least 30% moisture."

The possible benefits of added protein and minerals are being studied, and some testing has indicated improvement from protein supplementation.

LAMB FEEDING—Dr. R. M. Jordan of Minnesota commented on research on various feed additives as part of a talk on lamb feeding.

Stilbestrol—Feeding of 1-2 mg. stilbestrol to wether lambs has usually given a positive response, Dr. Jordan said, while results with ewe lambs have not been consistent. Implants in wether lambs of 3-6 mg. have given a greater response than feeding; implanting ewes gives a positive response but less than with wethers. Use of lower levels of stilbestrol as compared with higher levels, he said, reduces the possibility of water belly that otherwise exists.

Antibiotics—The biggest advantage is in reducing death loss from enterotoxemia and other causes, said Dr. Jordan, and research has shown improved gain and feed efficiency in numerous tests. In commercial lots, with more stress, additional gains are generally the rule, he observed.

Tranquilizers—Hydroxyzine has improved results in some tests but not in others, said Dr. Jordan. He said most tranquilizers have not been effective for fattening lambs.

Tapazole—Results have "not been encouraging," the speaker said.

Liquid Feed—"In tests at Minnesota Morea was not as effective as soybean meal in promoting lamb gains," Dr. Jordan said. He said that while lambs do as well on this later, it takes a while for them to adjust. A person in the audience said commercial use with cattle has improved inside quality and shown on other benefits. Dr. Jordan said that with lambs, the feeding period is short and use of the supplement "more costly."

Fat—The value of fat depends largely on its relative cost in relation to other carbohydrates, the speaker said. He said levels over 5 or 6% hurt results.

Feather Meal—Minnesota obtained as good results with a feather meal supplement as soybean meal. Value is dependent on cost per ton.

Non-protein Nitrogen—Dr. Jordan said: "It takes two to four weeks for rumen microorganisms to adjust; since most lamb fattening periods are short, non-protein sources of nitrogen have not worked out as well for us with sheep as for fattening cattle."

Pelleting—The best responses are obtained with a high proportion of roughage. In most experiments, according to Dr. Jordan, additional cost has more than offset increased gains. Most Minnesota feeders have not used pellets much, he said, although some use pellets to get lambs started.

Enzymes—"This additive has not resulted in a positive response," said Dr. Jordan.

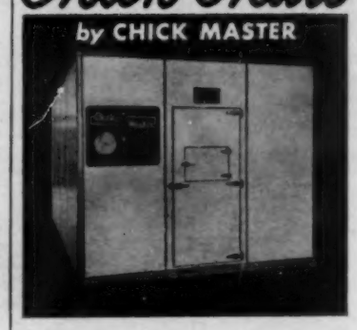
Cobalt Bullets—The speaker said it appeared to him that trace mineralized salt fortified with cobalt is more economical and easier to administer than cobalt bullets.

Molasses—Its value at Minnesota has been in relation to its TDN content, said the speaker.

CREEP FEEDING LAMBS—Creep feeding of lambs should be followed by only those sheepmen who can derive a financial benefit from the practice, said Dr. R. M. Jordan of the University of Minnesota. Whether a producer can profit from creep feeding will depend on these factors: (1) Is he set up to have ewes lamb during January and February? (2) Is there a $2-$4 per cwt. price differential between fat lamb prices during June-July as compared with September-October? If these conditions do not exist, it is doubtful whether a creep feeding program can

(Turn to CONFERENCE, page 33)

Chick Chats
by CHICK MASTER



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Pfizer

BLOAT

IN RUMINANTS

From the standpoint of feed digestion farm animals may be divided into two classifications. These being the simple stomached animals such as the pig and chicken; and the polystomached animals, such as the steer, sheep and goat—called ruminants. The four stomachs of the ruminant in descending order are: rumen or paunch; reticulum or honeycomb; omasum or manyplies; and abomasum or true stomach. In adult ruminants these four compartments occupy approximately 70 to 75 per cent of the total volume of the alimentary tract.

By virtue of the four stomachs possessed by the ruminant they are able to utilize large quantities of fibrous feedstuffs. This utilization of fibrous feedstuffs is accomplished by the symbiotic relationship of the rumen microorganisms and the host animal. Digestion of cellulose by the rumen microorganism is accompanied by large quantities of gas production. Under certain conditions, this gas accumulates and the animal is unable to expel the accumulated gas. The excessive accumulation of gases in the rumen leads to a condition known as bloat. Unless immediate attention is given to these animals, a large per cent may die.

Malady for 2,000 years . . .

Bloat in ruminants is not a new disease. It was described by a Roman author in 60 A.D. His treatment included, "pouring vinegar through the left nostril and putting two ounces of grease in the jaws." As will be shown later, this treatment might have had some beneficial effects.

Incidence is frequent . . .

As nearly as can be determined from veterinary and animal husbandry literature, there has been a sharp increase in bloat in the last century and especially during the last twenty-five years. A number of factors could account for this pronounced bloat increase: feeding practices, genetics and, of course, the widespread use of legumes. A recent survey (1) showed that 83 per cent of farms with Ladino clover pastures were having bloat trouble. A Minnesota survey (2) made in 1948 showed a high incidence of bloat on both alfalfa and sweet clover. In recent years it is generally conceded the incidence of bloat is somewhat proportional to the increase in pure legume or mixed legume pastures and in hay crops of similar composition. It has been estimated that there has been an annual increase of one-third of a million acres of legumes in the United States as a whole during the past decade. Most investigators are in agreement that the high incidence of bloat is associated with the ingestion of legumes in one form or another, but that bloat can occasionally occur in non-legume pastures. The incidence of bloat is greater in cattle than in sheep, although it can become serious in the latter.

Reduces farm income . . .

Accurate estimations of the economic importance of bloat are difficult to make. It has been estimated in the United States that bloat in dairy cattle, beef cattle and sheep causes animal losses of forty to forty-five million dollars a year (3). Figures show that from 10,000 to 20,000 cattle die of bloat in New Zealand annually. Most of these are dairy cows. In a country having only about two million dairy cattle, these losses are staggering.

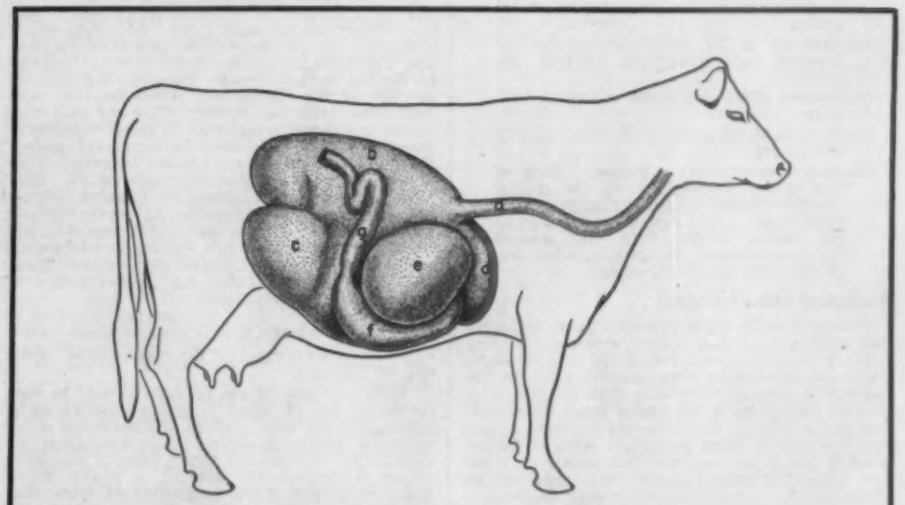
The loss of milk and meat production is probably of greater importance than the actual death toll. The difficulties encountered in making estimates of losses in production are obvious. It is difficult even to accurately estimate the death losses since postmortem gaseous distention of the full ruminant stomach occurs following death from practically all causes. The changes in management practices such as the plowing up of a fine new Ladino clover pasture following a few cattle deaths, must not be overlooked.

Bloat study status . . .

It is only natural that a disease as insidious and as complex as bloat should be surrounded with many theories as to cause and treatment. Many of these theories are not far removed from the realm of superstition. It is only within the last twenty-five years that planned research has been directed at a solution of the problem. Within the past ten years, definite appropriations have been made to study the disease so that interest and progress have made a positive upswing.

Classify bloat . . .

Attempts have been made to classify bloat as chronic, subacute and acute (4). The difficulty with this method of classification is that some so-called chronic cases may suddenly become "acute"; i.e., some cattle in Mississippi experiments (5) bloated mildly over 100 times before fatal bloat occurred. Animal conformation, thickness of the body wall and other factors make it difficult to assess the degree of bloat; in fact, little is known about the critical intra-ruminal pressures. Some measurements have been made in cattle that had just died of bloat, (6 & 7) but measurements made on cattle or sheep in the critical stages seem to be entirely lacking. The tympanometer method (8) seems to vary too much in the hands of different investigators. As it stands now, we are dependent on symptoms rather than on objective tests in judging the critical



The polystomached ruminant has the four stomachs situated schematically as in the above diagram: a. esophagus, b. dorsal sac of rumen, c. ventral sac of rumen, d. reticulum, e. omasum, f. abomasum, and g. duodenum.

stages of increased intra-ruminal pressures in bloated animals.

Gas has origin . . .

Rumen microorganisms maintain active and continuous fermentation of ingested forage. This is one of the chief sources of gas. These microorganisms also produce large amounts of acids which react with the bicarbonate of saliva to produce carbon dioxide. The bicarbonate carbon dioxide plus the carbon dioxide and methane produced by bacterial fermentation form a formidable amount of gas; about a half gasson (2 liters) of gas is produced per minute in a 1,000-pound animal. The amount of gas can vary within rather wide limits, (9) but from insufflation experiments it is still reasonable to assume that ruminants can eructate any amounts formed naturally in the rumen if the eructation mechanism is normal and is not inhibited. Small amounts of hydrogen sulphide and even traces of carbon monoxide are formed in the rumen (6).

Means of gas elimination . . .

It should be stressed at this point that gasses are eliminated in three ways: first, by absorption and elimination through the lungs; second, by eructation; and third, by passing on out through the gut with the feces. In ruminants it is generally conceded that most of the gas is eructated, although it is difficult to make accurate estimates of the amount of gases that are absorbed and eliminated through the lungs. The difficulties encountered in differentiating between absorbed rumen CO_2 and metabolic CO_2 are obvious.

The physiology of eructation becomes of great importance; in fact, the ruminant's life depends upon its efficient function. Two groups (10, 11, 12 & 13) have recently concentrated on studying this important mechanism. One group (10) working with cattle has found that the vagus nerves play an important part in eructation. In later unpublished work (11) they have also found that the excitatory receptors are rather widely distributed in the rumen wall. They also showed that afferent as well as efferent limbs of the eructation reflex were located in the vagus nerves. Another group has studied the esophagus, reticulum and cephalic part of the rumen, cinefluorographically, during forced eructation. Under the conditions of their experiments they describe the eructation events as follows:

To contracts of the reticulum;

Contraction and raising of the ruminoreticular fold;

Contraction and raising of the anterior pillar. These two structures help in keeping the cardia area cleared of ingesta;

Contraction of the rumen forcing the gas forward and downward towards the cardia;

Relaxation and filling of the reticulum with gas;

Relaxation of the cardia and diaphragmatic sphincter;

Increased eructation—a gaseous filling of the entire esophagus with the cranial sphincter contracted and finally a rapid contraction of the esophagus throughout its entire length with the cranial sphincter relaxed and the cardia and diaphragmatic sphincters closed.

Eructation often inhibited . . .

Research work done in recent years indicates that moderate gaseous distention increases eructation. It is also common knowledge that the ruminants can voluntarily regurgitate ingesta in the rumination process. Why then does not increased gaseous distention of the rumen speed up eructation sufficiently to eliminate any amounts of gas that are formed under maximum rates of formation? If this is not possible, then why doesn't the over distended animal regurgitate large masses of ingesta to relieve the severe over distention? Bloated cattle do eructate in the early stages of severe bloat, but apparently at a decreased rate which becomes less efficient as distention progresses. In the final stages of severe bloat eructation may cease entirely. Rarely do bloated animals regurgitate large masses of ingesta to relieve the tension.

Cardia clearing mechanism . . .

If the inhibitory reflex is eventually proven to be the principal factor in the reduction of eructation efficiency and its eventual complete blocking in the latter stages of bloat, then two factors become doubly important: the cardia clearing mechanism; and the accumulation of gas in minute bubbles—foaming—throughout the ingesta.

Findings in work with sheep (12 & 13) indicated that the ruminoreticular fold was quite active in keeping ingesta away from the cardia area during the most active phase of eructation. Later work (15) suggested that the anterior pillar was another structure that is very important in the cardia clearing process in sheep. Anatomical differences in cattle suggest that the anterior pillar is far more important in helping to perform this function. This is a situation that is commonly encountered in biological work, i.e., the difficulty of the extra-palation of results from one species to another. Undoubtedly, this important field of study needs much attention. It will, no doubt, be found to be a rather complicated motor event.

Foaming of ingesta . . .

In the minds of most investigators foaming of ingesta seems to be one of the most important factors that makes eructation less efficient. It is common in pasture bloat and has been recognized for centuries. Since foam stimulates the inhibitory receptors in the cardia area, foaming becomes extremely important in the study of bloat.

Feedlot bloat is also characterized by the accumulation of very small bubbles throughout the ingesta.

This does not mean that in all cases of bloat there are no gas pockets in the ingesta. It is probable that in all bloat cases there are varying amounts of gas accumulated in from a few to many gas pockets scattered through the ingesta. It is doubtless a relative matter. In some individuals there seems to be little "free" gas in the rumen; in others there is considerable.

Physical nature of foam . . .

In attempting to understand this process of foaming, it is necessary to understand how gas is formed, and how it is established in the dorsal part of the rumen where it may enter into the normal eructation process. Previous mention has been made of the actual sources of the gas. Physically it is formed in countless miscroscopic bubbles. These contact each other, their thin monomolecular membranes rupture and they coalesce. This continues until larger and larger bubbles rise to the top, or are broken under the influence of motility of the rumen and reticulum (and possibly other unknown factors). The gas then continues to rise and accumulate in the dorsal part of the rumen where it may be eructated and/or absorbed. The above mechanism is accepted by many, but actually the liberation of gas from rumen ingesta may be far more complex. Why is foaming more prominent in certain individuals while the entire herd is under the same diet and system of management? Is the degree of foaming related entirely to the degree of bloating? These are soluble problems but our understanding of them is decidedly limited.

Etiology of bloat . . .

There are a number of theories, some of which will be discussed.

Rate and type of gas production. As has been previously stated, there is considerable variation in the rate and total amount of gas formed under different dietary regimes. Under conditions favorable for the normal functioning of the eructating mechanism the amount of gas is not a factor. The type of gas could possibly have some effect on eructation, under experimental condition; however, the two kinds of toxic trace gases that have been reported—hydrogen sulfide and carbon monoxide—have little effect on the eructation mechanism until the animal shows symptoms of general intoxication.

Overfilling has been considered by some as a cause of bloat. In the light of finding of eructation reflex inhibitors in a relatively small area around the cardia which are stimulated by the contact of this material with the mucous membrane of this area, this theory becomes more acceptable. It must be remembered, however, that bloating frequently occurs in cattle eating much less than others under the same conditions (16). In other words, bloating is not necessarily associated with greedy eaters or with the individuals consuming the most feed.

Salivary flow. Bloat-producing diets are usually ones which stimulate a minimum of saliva secretion. Pasture and feedlot bloat-producing diets produce little stimulation of rumination and definitely do not stimulate the maximum flow of saliva. The stimulation of salivary secretion has been studied and has been found to be under the influence of reflexes from some of the compartments of the ruminant stomach and to mechanical irritation of the cardia region of the forestomachs. In the latter work using an arbitrary "consistency index," larger amounts of saliva secreted and swallowed into the rumen prevented foaming and bloat. Lesser amounts as would be secreted while grazing on succulent legume pastures caused foaming with subsequent bloating. Other investigators working with composite or impure saliva samples have found that saliva produces a stable foam; (17) consequently, they cannot subscribe to the prevention-of-foaming of ingesta by increased salivary secretion. It is doubtful if there is sufficient experimental evidence on either side of this argument for definite proof. It is just another facet of this many-sided and obscure disease that needs more investigation.

Toxic theory. There have been a number of attempts to incriminate certain toxins formed in the rumen as a result of bacterial action on certain feed constituents such as urea (18) and sugar (19), but no definite correlation has been demonstrated between the formation of these toxins and the symptoms of bloat or other diseases. It is possible that certain toxins could interfere with the normal functioning of the eructation mechanism. Toxins and other pharmacological substances of plant origin will be considered later.

Physical nature of the feed. Some (20) have considered the eructation mechanism to be under the influence of scabrous—scratchy—material in the feed and consequently in rumen ingesta. Others (14) as previously stated, have postulated that the scratchy material in the rumen stimulated saliva secretion which in turn prevented foaming of ingesta. Others (21) have demonstrated that acute bloat can be produced by feeding a diet of 50 per cent concentrates. If the same alfalfa is fed whole with the same proportion of concentrates, bloat does not occur. Whether it is due directly to the scabrous material in the feed or to the fact that feed that is finely ground is more readily attacked by bacteria or to other reasons, it is an interesting fact that either finely ground feeds containing the "right" ingredients or succulent legumes may cause bloat.

It is generally conceded that certain legumes are more apt to cause bloat than non-legume plants. This is not an infallible rule since bloat does occur occasionally on rye grass, blue grass and other non-legumes. The incidence of bloat is much higher in pastures containing over 50 per cent clover than it is in those containing less than 50 per cent.

Toxic and other constituents of plants:

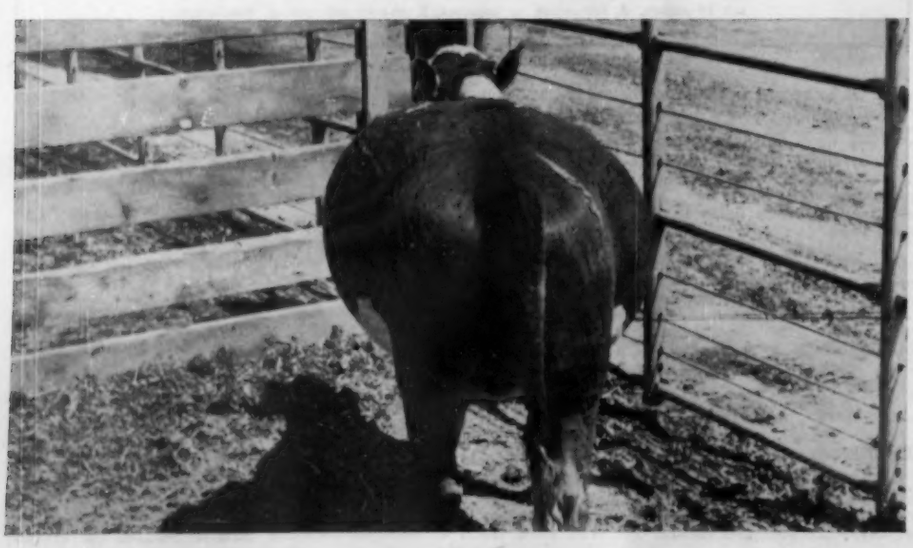
Prussic acid has been considered as a factor in the etiology of bloat; however, it has been shown (22) that birdsfoot trefoil, which is the highest of the common legumes in cyanide content, causes little or no bloat.

Saponins. A free-gas type of bloat has been produced in cattle, sheep and goats by oral administration or by intravenous injections of saponins of alfalfa origin (23). Others (24) have produced death in sheep without bloating when starved animals were used. Bloat producing plants are relatively high in saponin content. Besides their pharmacological activity, saponins have a strong tendency to produce stable foam. It has not been definitely proven that saponins play a part in the production of foam in the rumen; however, they must still be considered as possible factors.

A choline-esterase inhibitor found in white clover (25).

The falvones of legume origin have been incriminated (26), but later work seemed to attach little significance to the presence of these substances.

Undetermined factors that may be produced by frosting. In some regions frosting is thought to produce certain chemical changes in the plant which are instrumental in causing animals to bloat when these plants are eaten soon after the plants are damaged. Although such a possibility may exist, no analytical or other data is available to describe any definite substances.



A few general statements can be made regarding the specific factors—animal or plant—which act as causative agents in the production of bloat. Although some of these factors may very well be involved, no definite statements can be made incriminating them. This is further substantiated by the fact that it is difficult to produce bloat at will. Granted, it is possible to increase the incidence by legume-pasturing bloat susceptible animals, but even in this case bloating may suddenly stop without making any changes in the feeding or grazing management. Many times workers have made fruitless attempts to produce bloat in a pasture that has caused the death of a significant number of animals. Animals have pastured successfully all summer and without warning and without known changes bloat has suddenly struck its telling blow. These facts are impressive to stockmen and to the experienced worker.

Cause of gas retention . . .

Here again we can do little more than list theories.

Saponins in legumes—their surface tension activity is well known. Whether they are released in this form in the rumen is questionable. The lack of good quantitative analytical methods has made it difficult to assess their surface tension activity in the rumen.

Some rumen bacteria produce significant amounts of slime which could have a place in the production of stable foam.

The role of saliva has been advanced as both preventing and causing foaming of ingesta.

Soluble plant proteins and some of their breakdown products definitely contribute to the foaming of rumen ingesta in the test tube. Their action in the rumen is unknown.

Little definite information is available concerning the retention of the gas in countless small bubbles which with other components of ingesta forms the light, foamy mass commonly seen in bloated ruminants. It is a very important part of the picture and its solution will probably require extensive work in the fields of biochemistry, physical chemistry, plant chemistry, physiology, bacteriology and in other fields. It is doubtful if any single factor will be adequate.

Treatment of bloat . . .

In the light of recent work some of the older treatments that were intended to decrease activity of the microbial population of the rumen may have been effective, not in the way they were intended, but by their effects on surface tension (defoaming agents). (27) In this group are turpentine, mineral oil and certain phenol preparations.

Acetyltributyl-citrate (Citroflex A-4) has shown efficacy in relieving steers with frothy bloat (28). Steers grazing on legume pasture that were excessively bloated and those showing distress were corralled and treated with Citroflex A-4. Treatment was administered by either of two routes, orally or intrarumenally by means of a hypodermic needle inserted in the para lumbar fossa area.

Control bloated animals showed little change in 60 minutes. When Citroflex A-4 was administered the same animals were normal in about an average of 26 minutes.

The recommended initial dose in all cases is 20 cc. per animal with recommendations to repeat the dose in an hour's time if needed. As much as 120 cc. has been administered in one dose without ill effects to the animal.

Vegetable oils (300 ml. or larger doses) given orally may relieve bloat if the cases are not too far advanced (29).

Some (30) who believe that bloat is an allergic phenomenon report successful treatment of certain kinds of bloat with injections of epinephrine. Others (31) report no favorable effects from either the use of epinephrine or antihistaminics.

Household detergents have been used in clearing the forestomachs of froth (32).

Silicones, which are powerful defoaming agents, in vitro, have been used by some (33) and were thought to be effective in treating bloated animals. Others have considered silicones as being relatively ineffective (31).

The use of a stomach tube. This method is effective in severely bloated animals as an immediate and temporary relief, if the gas has accumulated in fairly large or large pockets. It sometimes takes considerable manipulation to find these pockets. One must bear this in mind in attempting to estimate how much handling the animal can stand. In severe foamy bloat stomach tubes are practically useless, but even then it may be worth a try if the animal's condition is good.

Trocarization or surgical intervention are the treatments of last resort. It is usually conceded that if the large stomach tube in competent hands is ineffective, then the trocar will probably be just as ineffective. It does take better restraint and more time to use the large stomach tube. Surgical intervention, the last resort, is at present our only method of attempting to save an animal that is about to go down or one that has just collapsed. In this case the only hope of saving the animal is to quickly reduce intro-ruminal pressure, and this can be done by making an incision high in the left flank region so that some of the ingesta will be forced out of the rumen incision or it can be pulled out manually. Care should be taken to minimize contamination of the peritoneum. After surgical reduction of the incisions, antibiotic support may be a decided aid in possible recovery.

Prevention of bloat . . .

Definite progress has been made in the last few years in reducing the incidence of bloat. This is very heartening since this is the ideal attack on any disease. Some progress has been made but there is still much to do. Some of the methods showing definite promise are:

Pasture management. If pastures are maintained with no more than 50 per cent legumes, there is good evidence that bloating will be reduced. The main trouble with this type of management is the difficulty encountered in maintaining this ratio under changing weather and grazing conditions.

Feeding hay to animals each day before turning onto legume pastures. This kind of hay is important in this regime. Overnight feeding of Sudan hay completely prevented bloat (34). Recent work (35) has shown that the amount of hay consumed is of utmost importance. Ten pounds of Sudan hay was only partially effective, whereas 17 pounds afforded complete protection.

Alternative pasturing of Sudan and legume pastures. Overnight pasturing on Sudan grass has prevented bloat on alfalfa pasture the following day (34).

Legume soilage. Cutting legumes and hauling them to the barns or corrals has reduced the incidence of bloat in some cases. In others it has not proven to be sufficiently effective to warrant its use.

Strip grazing. The use of this method permits the ingestion of certain amounts of feed but it has distinct disadvantages. It is impossible to accurately judge the daily needs of a large herd and it does subject the pastures to severe trampling and possible overgrazing. This method is not completely effective in preventing bloat.

Oxytetracycline. When oxytetracycline is administered orally, 75 mg. per animal daily, either mixed in the feed or in salt, it has been shown (28) to reduce the incidence of bloat by approximately 76 per cent. This antibiotic acts as an aid in reducing the incidence and severity of bloat in cattle on legume pastures as well as in feedlots.

In the treatment of 30 cases of chronic bloat (36) in unthrifty calves ranging from 200 to 400 pounds in weight, one gm. of oxytetracycline intravenous doses were given. This was followed in 48 hours with another intravenous dose of one gm. of oxytetracycline. In every case, complete recovery was reported 8 to 10 days after beginning of treatment. In no instance was it necessary to repeat the dosage more than a total of two injections. This treatment proved to be satisfactory for the 30 bloat cases under test, and these calves again became thrifty feed converters.

Penicillin. Under certain conditions this antibiotic has shown to be effective in preventing bloat. It must be given orally in 75 to 100 milligram doses, and it must be administered four to six hours before the animals go on pasture. Its effectiveness is from two to three days.

Vegetable oils: peanut oil, corn oil, etc. These have proven to be effective either given as drench or if they are sprayed on pastures (37). Peanut oil has been used effectively. Other vegetable oils may be just as effective. An emulsion is sprayed on the amount of pasture that will be grazed in twenty-four hours at the rate of three to six ounces per cow. If it rains, spraying will have to be done more often than is necessary during dry weather, since the oil emulsion droplets are readily washed off the plants. It is difficult to make definite statements regarding this procedure since a number of factors have a direct influence, such as density of the foliage, performance of the spraying equipment and, of course, the frequency and amount of rainfall. If oils are given as a single drench to prevent bloat, the effect lasts only for a few hours. The labor and difficulties encountered in this method of getting material into the rumen are well known.

In general, the spraying of pastures with digestible oils looks promising. However, the cost of this operation must be carefully considered.

Liquid paraffins. These are effective in preventing excessive ingesta foaming and in dispersing part of the foam already formed, but they do cause a fall in the carotene content of the blood. The carotene level of butterfat also falls when the dosing is significant and continuous (38).

In New Zealand, the practice of spraying oil and liquid paraffins over the forage or feed is practical, and is practiced. However, in the United States, this method is not used because it is not economically practical.

Animal fats. Lard oils and tallow incorporated in the feed have been effective in reducing feedlot bloat. Oil in the drinking water reduced bloat except when excessive rains reduced water consumption. Soybean oil sprinkled on grain was more effective than it was when included with the grain.

In general, the animal fats and vegetable oils are quite effective in preventing bloat. Some other substances such as lecithin combined with lard oil have been very effective. The more pleasing part of the picture is that fats and oils are digestible, and in some instances the increased gains pay for the cost of the material.

Cause of death unknown . . .

Much has been written, but little is known, of the final phase of acute fatal bloat. There is little available information on the physiopathological changes occurring in the latter stages of bloat. Some studies have been made of sheep insufflated with a mixture of carbon dioxide and methane similar in composition to rumen gas (39).

Arterial and venous blood pressure rose rapidly until the sheep exhibited critical symptoms when these pressures fell rapidly. Cerebrospinal fluid pressures rose sharply as the intra-ruminal pressures were increased. Blood gases fluctuated rapidly, the fluctuations being associated with eructations. This work indicated that the physiological events are complex, and that death in bloat does not result from a simple asphyxia and interference with the return of venous blood to the heart.

Future study of bloat . . .

There have been marked advances in our understanding of the physiology of eructation during the past five years. Methods of prevention and treatment are beginning to look much more promising. In general, during the past eight or ten years it has been extremely gratifying to see the increased interest in and financial support of work on this important and complex disease. If this interest and support can be maintained for another decade or even less the important aspects of bloat may be well in hand. If it is possible to control bloat so that legumes can be grazed with a minimum of danger, it will be far more important than the saving of animal lives. It will mean that legumes can be used more widely, and this means that soils can be built up more extensively and rapidly with the most economical nitrogen source.

Like the solution of any other complex problem when a good start is made it is not time for complacency. It is hoped that the present research momentum will continue and that we will continue to expand our basic knowledge of bloat.

For additional copies of this article, write to Chas. Pfizer & Co., Inc., AGRAData, Agricultural Research & Development Department, Terre Haute, Ind.

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New Feed Grain Export Record of 12.5 Million Tons May Be Bettered in 1960

WASHINGTON—Exports of feed grains rose to a record high of 12.5 million tons during the 1958-59 marketing year, and the probability of another new record is seen by the U.S. Department of Agriculture.

USDA notes in a feed situation report that so far during the 1959-60 marketing year (July-June for oats and barley; October-September for corn and sorghum grain), exports of each of the four feed grains exceeded those of a year earlier. USDA foresees total exports of around 13 million tons for the entire marketing year. (See Feedstuffs, Feb. 6, for earlier story on feed supplies.)

The agriculture department points out that while exports of feed grains continue to be relatively small compared with total disappearance, they are increasingly important as an outlet for surplus U.S. production.

During the seven years, 1952-53 through 1958-59, the total carryover stocks of feed grains in this country increased from 20.1 million tons to 67.7 million, an average rate of close to 7 million tons per year. In this same period, 53 million tons of feed grains were exported, at an annual rate of about 7.6 million tons per year. These comparisons indicate that without the rise in exports, USDA says, the buildup in stocks would have been substantially greater.

In 1958-59, total export tonnage was nearly equal to the total tonnage used for all non-feed purposes—food, industry and seed—in this country.

Going back even farther, USDA notes that during the 20 years, 1926-45, exports averaged only 1.2 million tons, approaching 5 million tons in only one year (1937-38) and falling below 1 million tons in 12 of the 20 years. Exports were only about 1.5% of production during that period.

In the 10 years following World War II (1946-55), exports increased to an average of 5.2 million tons, a little over 4% of the average production.

The 12.5 million tons exported in 1958-59 were nearly 8% of the 1958 crop.

USDA notes that while exports of each of the four feed grains have increased sharply since prewar years, exports of corn have increased at a slower pace than the other grains. Corn made up 87% of the total feed grain exports in 1937-41, but was only about half of the total in 1954-58. Exports of sorghum grain were insignificant in most prewar years.

Exports Important

But with the sharp increase in production, especially in areas near the Gulf ports, exports have become an important outlet, accounting for nearly a fourth of the total disappearance in 1954-58. Exports of oats and barley also increased, though exports of oats are of minor importance compared with domestic use.

In explaining the sharp increase in exports, USDA points out that in postwar years, there has been a rapid expansion in the demand for feed grains in western Europe, the destination of three-fourths of our total exports in 1958-59. Rising income in western European countries has increased the demand for livestock and livestock products, and, in turn, increased feed grain requirements in these countries, USDA adds.

Improvement in the balance-of-payment situation for many of these countries and special export programs of the U.S. government contributed to the larger feed grain exports. While exports of other countries also rose, the U.S. materially increased its share of the total world trade.

U.S. Major Source

The U.S. is a major source of feed grains for many foreign countries, according to a report by the Food and Agriculture Organization of the United Nations. Israel depended on the U.S. for more than half of its total requirements during the three crop years, 1955-56 through 1957-58. The Netherlands imported 41% of the total tonnage used from the U.S., and Norway about 22%. The United Kingdom, the leading outlet for U.S. grain, imported 18% of its total requirements from the U.S. during the three years. Austria obtained about 15% of its feed grains from the U.S., Switzerland 10% and West Germany 7%. Most of the countries reporting relied heavily on domestically produced grains and some got their imported grain largely from other sources. Many of these countries rely largely on the U.S. for corn and sorghum grain, but they produce oats and barley or import these grains from other countries.

World trade in feed grains totaled 15 million tons in 1951-55, a third of which came from the U.S. The U.S. accounted for about half of the world total of 25 million tons in 1958-59.

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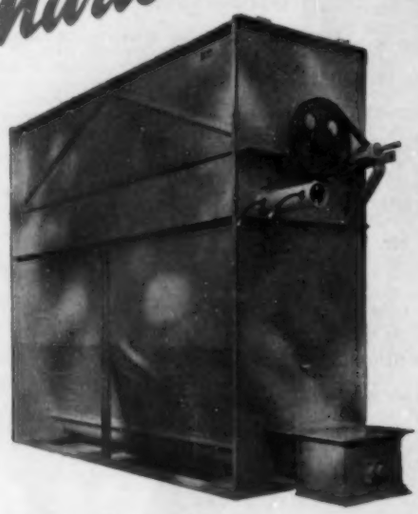

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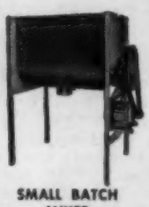

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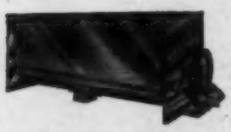

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Hot Spot Detector Appoints Engineer

DES MOINES, IOWA—Lowell M. Dahlgren has been named to the engineering department of the Hot Spot Detector, Inc., aeration division, according to Howard Johnson, chief of the division.

L. M. Dahlgren

Mr. Dahlgren was associated with the design of vertical and flat systems while a partner in the firm of Dahlgren-Wiser of Enid, Okla. He has also been in the engineering departments of Northern Natural Gas Co., the state of Iowa, and the U.S. Engineers in Omaha.

Mr. Dahlgren will assist in the design of aeration systems, the preparation of specifications and quotations, and will be available for consultation with sales engineers concerning engineering and installation of specific aeration systems.

FARM POPULATION

ATHENS, GA.—Only 12% of the U.S. population is farming, but this group is providing more than 170 million persons with an abundance of high quality foods at reasonable cost, according to University of Georgia economists.

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The chart tells only part of the story, because the Hy-Line 934 Series birds available this year have an even higher performance potential than those that won 6 of 12 Random Sample Tests ending in 1959. It's another good reason why your feed customers with Hy-Line 934 Series layers will stand a better chance of making bigger profits.

Average income advantage per bird (over feed and chick cost) for Hy-Line 934 Series layers over each of the 9 next largest-selling layers

(computed from 21 Random Sample Tests ending in 1958 and 1959).

$ .29	more income than Brand B
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.66	more income than Brand D
.44	more income than Brand E
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.40	more income than Brand I
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55¢ more income than the average of the 9 next largest-selling layers.

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Cattle Research Results Reported

RALEIGH, N.C. — Papers on variations in beef carcass characteristics and enzymes in beef fattening rations were among those presented on beef cattle research at North Carolina State College at the Cattlemen's Conference recently here.

Variations in beef carcass characteristics were checked as influenced by feeding practices, diet ingredients and breeding. The effect of levels of feeding in conjunction with low level of diethylstilbestrol implantation was one of the points investigated.

Sixty yearling beef steers were used in a 3x2 factorial design employing three levels of nutrition with equal replication at each level. Half the animals on each level were implanted with 24 mg. of Stilbestrol.

Five steers were fed in each of 12 lots from an average initial weight of 675 lb. Full feed was calculated at 3% of body weight, whereas, the 80% and 60% levels of nutrition were calculated as those percentages of full feed above maintenance. The complete mixed ration was based on ground ear corn. Intake was adjusted at bi-weekly intervals according to body weight. Animals were slaughtered by nutrition levels when the average gain reached 350 lb. From the data collected, researchers reached the following conclusions:

1. An extended period of feeding of a high concentrate ration at levels below full feed decreased external fat covering as measured by rind thickness while increasing total body lean and marbling.

2. Slightly more feed per pound of gain was necessary at lower feeding levels due to increased maintenance cost with the additional time necessary to obtain the same amount of gain.

3. Although Stilbestrol, when averaged over all levels of feeding, was responsible for an increase in average daily gain of .31 lb., values from the treatment combination indicate that higher nutrition levels were necessary for the expression of pronounced Stilbestrol effect.

Researchers found no significant differences in body weight gains, feed efficiency, live condition grade or carcass grade and yield attributable to the addition of enzymes to beef fattening rations in another test.

Results are in agreement with those reported from the Ohio station but do not parallel those reported from the Iowa station. Studies and comparisons of the various trials do not immediately yield reasons for the disagreement of the data. It appears that there are systems and situations in which the addition of a dried bacterial fermentation product with high enzyme content to ruminant rations may result in stimulation in gains; however, these conditions are, as yet, undefined, researchers note.

Forty yearling steers were used in this experiment to evaluate three enzyme preparations as to their ability to stimulate gains in beef cattle. The preparations were mixtures of proteolytic and amylolytic enzymes and were added to a high protein mixture used to supplement ground ear corn (12-14% moisture).

New Phosphate Firm Names Superintendent

BUTTE, MONT.—Adrian O. Mathis has joined the newly formed Rocky Mountain Phosphates, Inc., Butte, as plant superintendent. He will be responsible for production and quality control at the new plant.

Adrian O. Mathis

Mr. Mathis is a graduate of the University of Tennessee with a major in chemistry. He has 11 years experience in the chemical industry as a research, development and control chemist.

Mr. Mathis served as a chemist with International Minerals & Chemical Corp. in Florida and Tennessee during the last six years.

The new plant will produce a defluorinated phosphate for animal feeds.

Hog Cholera Danger High in South Carolina

CLEMSON, S.C. — A large hog cholera epidemic could occur in South Carolina if immediate preventive measures are not taken, reports Dr. R. W. Carter, director, state-federal livestock disease eradication program.

He urges farmers to have all untreated swine vaccinated immediately.

Dr. Carter estimates that only about 25% of the swine on South Carolina farms are protected. It is usually considered that at least 60% must be protected to avoid an epidemic.

Two factors were listed by Dr. Carter as being the cause of the current lack of treatment. They are: (1) the extremely low incidence of hog cholera during the past several years, and (2) the prevailing low price of market hogs.

Explaining the latter, Dr. Carter said the low price of market hogs is a prime factor. The swine producer must decide between cost of preventive treatment and possible total loss.

Booklet on Turkey Management Revised

CAYUGA, N.Y. — The 1960 edition of Profitable Turkey Management, by S. W. Hamilton, poultry specialist, Beacon Milling Co., has been published.

The revised edition contains material on turkey production, consumption, breeding, artificial insemination and artificial lighting. Other subjects included are breeding cages, pole barns, processing, marketing and an egg testing program to determine the cause of reproductive failure. Feeding and management are also discussed.

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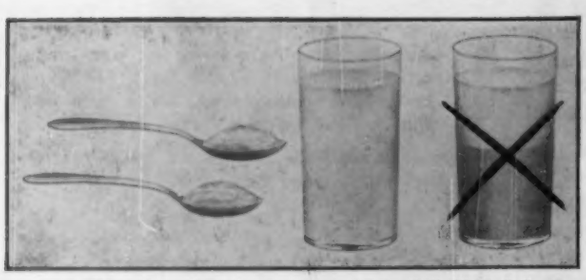

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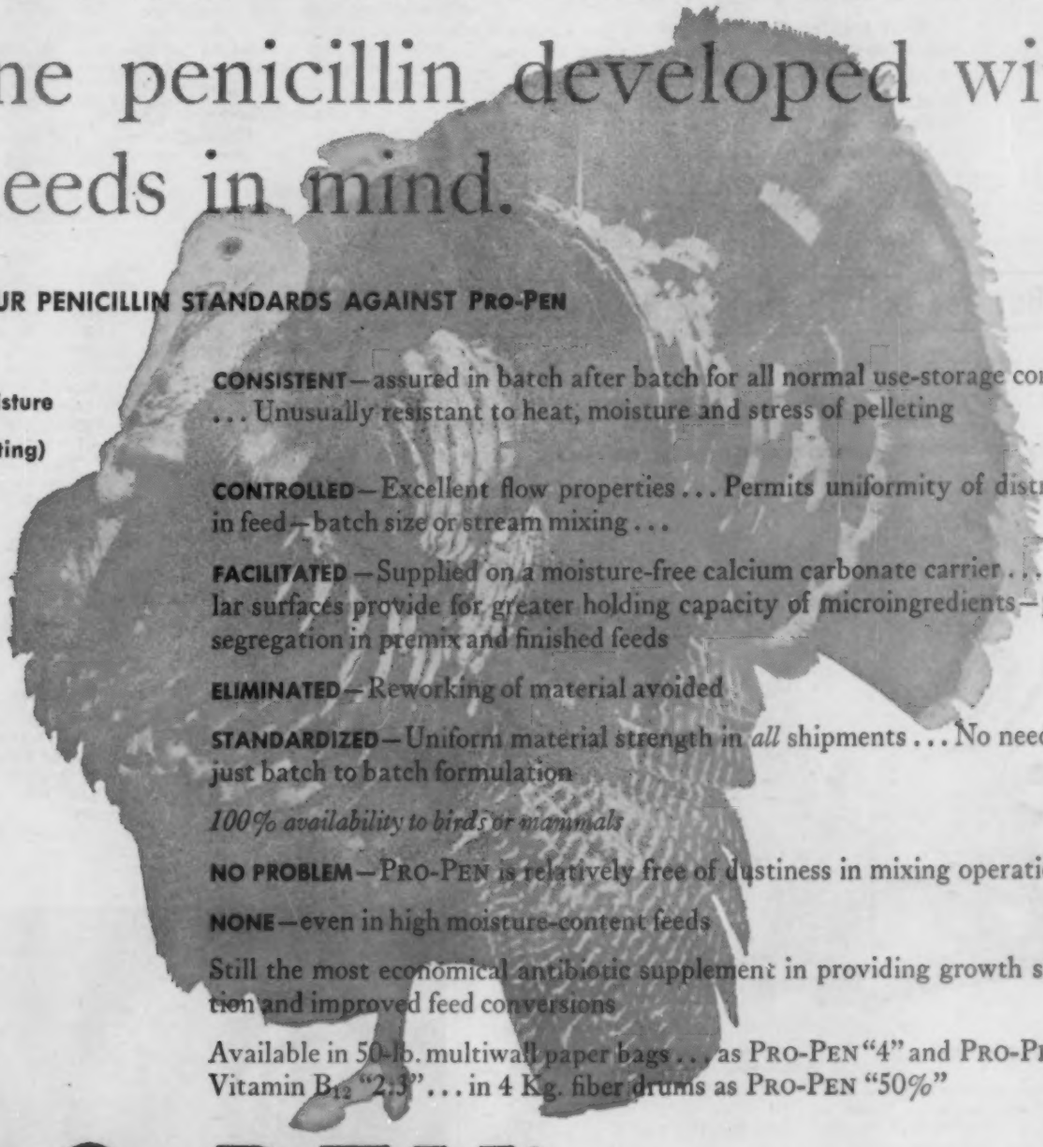

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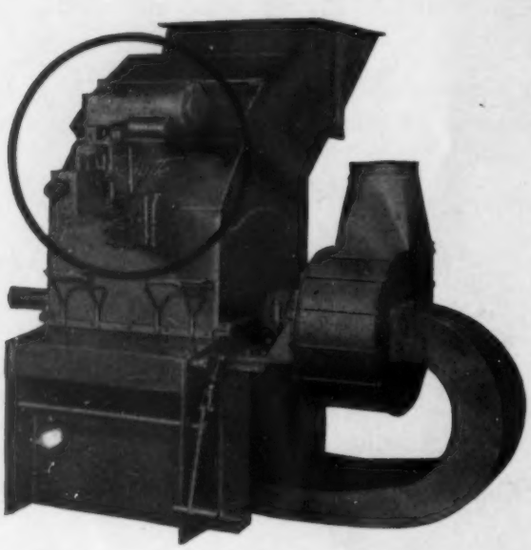

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Custom, On-the-Farm Mixing Compared at Illinois Ag Forum

URBANA, ILL. — Comparisons of custom mixing and on-the-farm mixing of feeds highlighted the feed sessions at the University of Illinois Agricultural Industries Forum Feb. 2-3. Also discussed were factors necessary to consider when locating feed plants and facilities.

More than 700 agricultural industry representatives attended the forum sponsored by the University of Illinois department of agricultural economics and the division of university extension. The theme of this year's conference—the second—was "Planning for Dynamic Growth."

E. E. Reynolds, director of feed sales for Central Soya, Ft. Wayne, Ind., declared that the value of the custom mixer is "as great or greater today than ever before."

He emphasized that the custom mixer has two important functions, service and profit. The custom mixer can't survive unless he performs a service to create a profit for his customers and the community where he operates.

Performs a Service

"Custom mixing is being carried on today because it performs a service for the community it serves—a service that is both needed and wanted," he pointed out. "It is cutting the cost of distribution and is bringing together the abilities of two segments of our industry, the farmers and the feed manufacturer. As a result, custom mixers are assisting to create a more profitable farming operation.

"With specialization in agriculture, many livestock and poultry producers must buy their feed from other farmers," he said. "The change in farming habits has had its effect upon the feed dealer, the country elevator and the custom mixer." Mr. Reynolds predicted that custom mixers will continue to receive farmer's grain and grind and mix it with supplements. "But this proportion of his business will continue to decline," he said.

Mr. Reynolds recognized that the grain bank idea works in some places while in others it has failed. "But whenever it is used," he said, "the grain bank must create a profit." It can be used to perform a function of custom mixing, he pointed out. Where the farmer and elevator have a well-planned program of exchange, this can result in considerable time savings to both farmers and the dealer, he asserted.

Advantages Listed

He listed these advantages for the custom mixer:

(1) Use of local commodities is of great value to the local community.

(2) Buying from and selling to the same farmers creates closer cooperation and better understanding.

(3) Operations can be kept flexible. When local ingredients are ample, he can gear his operations to these supplies. When there are shortages, he can ship in the needed grains. When grains are in surplus, the elevators operated by the mixer can help dispose of them.

(4) In general, custom mixers, particularly elevators, are larger in size than the "package" stores and can operate with lower overhead and lower cost.

Disadvantages

Mr. Reynolds listed these disadvantages of the custom mixer compared to a package store:

(1) There is need for manufacturing facilities such as grinding and mixing equipment, sometimes pelleting and crumbling, bagging, sewing equipment and a molasses tank.

(2) These items call for more capital in fixed assets and in working capital.

(3) Complexity of customers' demands add to problems of the custom mixer.

(4) Many package stores are specialized, particularly in the poultry business.

(5) The custom mixer faces the problem of quality control.

But Mr. Reynolds believes that the advantages outweigh the disadvantages. He emphasized that by using commercial concentrates, the custom mixer gets the quality control, feed formulation knowledge, new formula techniques, and continuing practical research on feeds and feeding which all reputable feed manufacturers perform. "It assures this dealer and his customers of the greatest accuracy and finest feeds possible to manufacture," he concluded.

Economist Reports

Dr. R. J. Mutti, University of Illinois professor of agricultural economics, estimated that farmers feeding completely ground and mixed rations who use less than 75 tons of feed a year will probably find their costs lower if they use custom mixing service than by operating such equipment on the farm.

"An automatic electric mixer and grinder on the farm can often result in lower costs than custom milling when feed use rises above 100 tons a year," he stated.

To use this amount of feed, he said, any of the following enterprises

(Turn to MIXING, page 81)

DISCUSSION LEADERS—Leading the discussion on custom and on-the-farm mixing of feeds and other subjects of interest to the feed industry at the University of Illinois Agricultural Industries Forum were these speakers (from left): Russell Jeckel, hog producer, Delavan, Ill.; Dr. R. J. Mutti, professor, agricultural marketing, University of Illinois; E. E. Reynolds, Central Soya, Ft. Wayne, Ind.; M. D. King, M. D. King Milling Co., Pittsfield, Ill., and Dan Teefey, Teefey Feed Co., Mt. Sterling, Ill.

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Minnesota Feed Mill Offers Customers Extra Services

Manager Says Special Mixing Jobs "May Slow Us Up at Times, But They're Worth It" in New Business Brought In.

By AL P. NELSON
Feedstuffs Special Writer

What extra services can a feed mill give farmers at a profit? Dale Swenson, a merchandising-minded feed man, who manages the new plant of Midland Cooperatives, Inc., at Waseca, Minn., can answer that question.

At this new mill made of precast concrete which was opened about a year ago, the hog farmer who wants a special hog concentrate made according to his own formula can get the job done. Furthermore, he can have the expert advice of a nutritionist, Milan Reed, who is stationed at the Waseca plant for this purpose.

Quite a few of these farmers operate with Iowa State University hog feeding formulas. In fact, the plant makes feed in pelleted form for the Iowa boar testing station just across the border. The farmers know this, and it is one of the reasons why they entrust the mill with producing their special concentrates and other feeds.

"We find that such pioneering work is wonderful advertising," says Mr. Swenson. "It is something farmers talk about at dinners, picnics and other gatherings. Such publicity directs many new customers our way. We try to work these special mixing jobs into our regular feed production schedules. They may slow us up at times, but the new business we get from the practice is well worth it."

This new mill was constructed and equipped to manufacture Midland feeds for a wide area and also to do any custom pelleting, mixing and grinding that customers want. The charge for custom pelleting is $5 ton. Custom pelleting accounts for about 20% of the mill's pellet output.

Precast Construction

Using the precast concrete construction plan, the mill, engineered by Thomas Hansen Associates, Minneapolis, was built by Chippewa Construction Co., Doran, Minn., in about four weeks. Twin City Pre Stress Concrete Co. furnished the precast concrete slabs and sections. For instance, a 40 by 100 ft. warehouse was erected in about four hours by the process.

The precast wall panels come in 4 by 8 ft. sizes. The roof panels are 3 ft. wide. Cranes lift and place the slabs and panels in place, according to Mr. Swenson.

EXTERIOR—Walls and roof of the Midland Cooperatives, Inc., plant at Waseca, Minn., were built with precast concrete panels. Cost of the mill, land and equipment was $300,000.

"The walls and roof of the building are of this precast concrete," says Mr. Swenson, "but some of the inside walls are of concrete blocks. While precast concrete construction is cheaper than steel, it costs more than wood. However, due to the very low fire insurance rates, the cost equalizes with wood. This is actually a fireproof building."

The feed mill is 84½ ft. long and 34 ft. wide. The office and showroom is 27 by 23 ft.

The mill has three receiving pits. One pit is for the corn sheller, another for the mill grist and the third for grain into storage. There is one grain holding tank of 350 bu. capacity and three bulk feed holding tanks, each of 5 ton capacity.

There is a double drive-in at this new mill. One is for dumping grains and other ingredients and the other drive is for loading out.

Bulk ingredients are received by truck and rail.

The Midland plant operates on a grain bank plan and has 26,000 bu. storage capacity for this purpose. Grain is purchased from the farmer and resold to him at time of order. Handling charges are 1¢ bu. The bank deposit is limited to a truckload of corn or oats for each customer.

Equipment

Equipment includes a 100 h.p. Jacobson mill with 40 h.p. on the blower, two Strong-Scott 2-ton horizontal mixers, Winona molasses blender, Winsted hay shredder, Roskamp huller and roller, Triumph corn sheller, and a California pellet mill with a production of 2 tons per hour.

The mill produces Midland Vita Con feeds for the area, both in pellets and mash. About 90% of the mill's production is in bulk feeds. A 6-ton, three-compartment Henderson bulk truck is used to deliver feeds to a large portion of Waseca County. The Waseca mill sells feeds retail within a 10-mile area and provides Midland dealers in the rest of the county with feed on a wholesale basis, states Mr. Swenson. Customers pay 50¢ ton for delivery of feeds. The discount on bulk concentrate feeds below bag price is $5 ton.

Grinding and mixing rates are the usual rates and grinding hay is 10¢ a bale. Considerable ground hay is used in sow feed in this area. Whitmoyer premixes are used in feed manufacture and custom mixing.

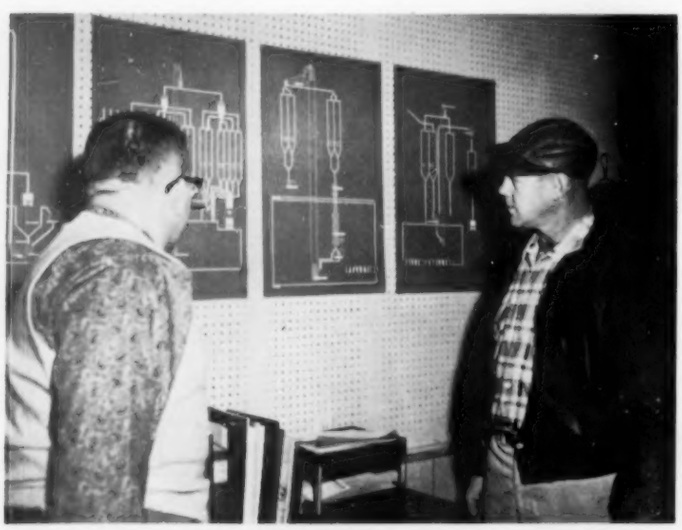
For weighing grain a 50-ton Fairbanks-Morse scale is used. The weigh house is equipped with an Emerson dockage tester, Steinlite moisture tester and Duval tester.

Corn Cob Shed

The mill has a special shed with bins into which corn cobs and oat hulls are blown. These products are sold to farmers for litter. The use of a shed, according to Mr. Swenson, keeps the premises relatively free from dust and refuse.

Between the mill and the corn cob shed, the firm has recently placed an automatic grain drier. It is connected with a corn bin and automatically draws off periodically the corn needed for drying, and then shuts off the supply. This drier is operated by natural gas. For drying corn from 20 to 15%, the charge is 6¢; above 20%, ½¢ per point; below 15%, 1¢.

Basement storage of molasses is 10,000 gal. The boiler is a 20 h.p. Vapor Heating Modulatic. Water is



MILL FLOW—Dale Swenson (left), manager, explains mill flow to customer by means of chart on office wall.

COB HOUSE—Here is the cob house and oat hull house behind the mill. Note grain drier between two buildings.

BULK LOAD OUT—The bulk load out area is enclosed, with overhead doors at each end.

HOPPER SCALE—Employee uses hopper scale to weigh feed.

See page 79

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See page 79

PELLET MILL—Employee is shown operating California pellet mill.

RECEIVING PITS — Dale Swenson (left), manager, points out one of three receiving pits to a farmer and child.

treated for trouble free broiler operation.

Newspaper and direct mail advertising is done occasionally by the mill, reports Mr. Swenson. When the new mill opened an excellent publicity feature was the free delivery of the first load of bulk feed for a customer.

Equipment Displays

Outside the mill, Mr. Swenson displays a large number of hog feeders, waterers and other livestock equipment. Such displays help sell many of these items.

The firm also blends, stores and sells bulk fertilizer. The fertilizer plant stands on the mill area premises. A Simonsen spreader is used to bulk spread fertilizer in spring, summer and fall. Customers are charged 50¢ acre for spreading.

The feed and fertilizer programs require a working force of eight employees the year around, reports Mr. Swenson.

Allied Mills Banquet

BUFFALO — Allied Mills, Inc., recently honored 100 employees of its Buffalo plant with 10 or more years of service at the company's annual service award banquet in Hotel Lafayette, D. A. Mote, plant manager, announced.

F. H. Blough, vice president, Chicago, presented pins and certificates. Among those who received awards for 30 years of service was Elmer J. Koehnlein, plant manager who retired Jan. 1.

FEEDING FIRM INCORPORATED

WESSINGTON SPRINGS, S.D. — Pony Hills Ranching & Feeding, Inc., has filed articles of incorporation, listing these incorporators: Harold G. Krog Lars and Dr. Sam J. Holman, Wessington Springs; Dr. Harold G. Krog, Woonsocket, and Frank Winner, David W. Corey and H. T. Fuller, all of Mitchell.

Farm Interest Rate Drop 'Not Imminent'

HOUSTON—Farmers who are sitting tight until interest rates go down before buying a farm or ranch may have to wait quite a while, according to Fred W. Gilmore, director of the land bank service, Farm Credit Administration.

Mr. Gilmore believes that interest rates are likely to remain "relatively high for some time to come."

Mr. Gilmore addressed the stockholders meeting of the Federal Land Bank of Houston, a bank through which nearly 37,000 Texas farmers and ranchers now have over $226½ million in outstanding loans.

Unparalleled demands for credit from all segments of the economy are the chief cause of higher interest rates, including those charged farmers, Mr. Gilmore pointed out.

Consumers are borrowing heavily, according to Mr. Gilmore. Total consumer credit was only $8.3 billion in 1940, while today it is around $50 billion. Demands for non-farm mortgage credit—for homes, apartment buildings and commercial properties —have been equally phenomenal. Loans outstanding on one to four-family houses, which Mr. Gilmore said amounted to $17.4 billion in 1940, totaled $128.5 billion in September, 1959.

Rising capital needs of farmers and ranchers have also added to the totals, Mr. Gilmore said. As an example, Mr. Gilmore cited that capital used on a typical Texas black prairie cotton farm amounted to $8,820 in 1940, whereas today the same farm would use over $30,000.

Canadian Scientists Study Oilseed Species

WINNIPEG — Two new species of oilseed plants, distantly related to rape, are being studied by Canadian agricultural scientists who feel they can be adapted to the climatic conditions of this country.

The two species are Crambe and Camelina, reports A. G. Plessers, genetics and plant breeding institute, Canada Department of Agriculture, Ottawa.

Crambe has been tested extensively and has out-yielded rape and flax in many locations, although the oil content is slightly less than in rape, Mr. Plessers said.

However, the oil of Crambe has a much higher content of erucic acid and its use is consequently restricted.

Camelina's particular value is that it has a shorter growing season than flax and matures readily in northern areas, where flax is frequently damaged by frost. It compares favorably with flax in yield and oil content. A disadvantage is the small size of its seed, he said.

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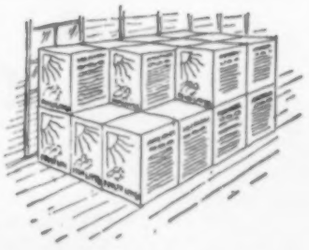

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Pelleted Lamb Ration Gives Good Gains

MADISON, WIS. — Exceptional gains and earlier marketing of lambs fed a complete pelleted ration were reported here at the sheep program of the University of Wisconsin's Farm and Home Week.

Harlan Bradt, a Lake Mills sheep raiser, said that before he started using pellets, his lambs weighed 70 lb. at 120 days. But with pellet feeding, his lambs went to over 100 lb. at 120 days old.

Mr. Bradt said it cost about $5 ton to have the 15% protein ration pelleted. It consisted of 30% alfalfa meal, 30% corn, 28% oats, 10% soybean oil meal and 1% each of dicalcium phosphate and trace mineralized salt. The ration was fortified with Aureomycin and vitamins A, D and E.

OFFICERS ELECTED

LITTLE ROCK, ARK.—Wes Field of Ocoma Foods, Inc., Berryville, has been elected president of the Arkansas Poultry Processors Assn. Other newly elected officers are Jess Merkle of J-M Poultry Packing Co., El Dorado, vice president; and Carl Smith of Priebe & Sons, Clarksville, secretary-treasurer.

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PELLETED GRAIN FOR DAIRY COWS

"Pelleted grain will play an increasingly significant role in dairy cattle feeding."

By Dr. T. H. Blosser
Washington State University

During the past few years a great deal of interest has been shown by those engaged in the feeding of dairy cows and other farm animals in offering feed to animals in a more concentrated form. The neatest package which has appeared to date is the pellet. The pelleting of roughage has captured the imagination of many, although pelleting good quality hay apparently provides no significant nutritional advantage for dairy cows.

Another interesting aspect of pelleting is in its use in feeding the concentrate (grain) portion of the ration. Pelleted grain has certain advantages over ground grain which may increase its use. Some of these advantages are: (1) Pellets occupy less space than ground grain and so more may be stored in a given area; (2) pellets do not bridge in overhead bins (e.g. in milking parlors) as do ground grains (ground grains are particularly troublesome in this respect if they are heavily molassesized); (3) pelleted grains are less dusty than ground grains; (4) pelleted grains are less easily wasted than ground grains; (5) pelleting may offer an opportunity to include relatively unpalatable forms of medication which can be used for prevention of diseases and disorders (e.g. sodium propionate for ketosis); (6) pelleted grains are eaten more rapidly (about 30% in an elevated, walkthrough milking parlor) than ground grains (Blosser and Shaw, J. Dairy Sci., 42:936. 1959).

Whenever rations are altered (whether this involves a change in ingredients) in proportions of ingredients, in temperatures to which ingredients are subjected or in physical form, it is important that effects on production and composition of milk be noted. As an example of the effect of change in the physical form of a feed on milk composition, one can cite the work which shows that the feeding of finely ground hay instead of long hay causes a reduction in per cent of fat in the milk. (Balch, J. Dairy Res., 21:165. 1954; Stoddard, J. An. Sci., 8:630. 1949; Powell, Proc. 31st. Ann. Meeting Am. Soc. An. Prod. p. 40. 1942).

TABLE 1. Milk Production, Fat Production, Butterfat Test and 4% Fat-Corrected Milk Production of Two Groups of 12 Cows During Three 50-day Periods in Which They Were Fed Either a Mash or Pelleted Concentrate (From Adams and Ward, J. Dairy Sci., 39:1448. 1956)

		Periods			Difference in favor of mash
		1	2	3	
Milk, lb./cow/day	Group 1	40.9	36.4	33.2	Not significant
	Group 2	46.4	42.5	39.8	
Fat, lb./cow/day	Group 1	1.55	1.33	1.27	P = <.01
	Group 2	1.66	1.55	1.42	
FCM, lb./cow/day	Group 1	39.7	34.5	32.4	P = <.05
	Group 2	43.4	40.2	37.2	
Butterfat test, %	Group 1	3.95	3.86	4.01	P = <.01
	Group 2	3.74	3.82	3.76	

Group 1 fed mash-pellets-mash in periods 1, 2, 3.
Group 2 fed pellets, mash, pellets in periods 1, 2, 3.

Because the non-fat portions of milk are being given increasingly more emphasis, we must also be concerned about the effect of changes in diet on such ingredients as protein and lactose, or perhaps, more generally, solids-not-fat. Thus it is important that the effect of pelleting the grain on milk flow and milk composition be studied.

Experimental Comparison

Adams and Ward (J. Dairy Sci., 39:1448. 1956) of Massachusetts conducted an experiment in which they compared a 16% protein mash-type concentrate (composition of concentrate not given in journal article) with the same ingredients in half-inch pellets for milk and butterfat production. Two trials were run involving a total of 16 Holsteins and 8 Guernseys. The roughages fed — chopped hay, grass silage and corn silage — were consumed at a level slightly over 2 lb. per 100 lb. body weight daily of hay equivalent in one trial and slightly under this level in a second trial.

Combining results from both trials showed that there was no difference in milk production in cows receiving mash or pellets. However, cows on mash produced milk of a significantly higher per cent fat than those eating pellets. They also produced significantly more 4% fat corrected milk (FCM) and more butterfat. Results are shown in Table 1.

As can be seen from Table 1, cows fed mash had substantially more fat in their milk than cows fed pellets (calculated difference was 0.38%).

Second Study

The second study dealing with the effect of pelleted grain on dairy cow performance was reported by Blosser and Shaw of Washington (J. Dairy Sci., 42:936. 1959). In this study, 12 Holstein cows were divided into two lots of six each, and, in a single reversal trial, one fourth-inch concentrate pellets were compared with the same ration in which the ingredients were ground or rolled.

The concentrate used was as follows: Barley, 25.62%; peas, 22.65%; oats, 19.21%; mill run, 18.22%; molasses, 8.86%; cottonseed meal, 3.45%; bone meal, .98%; iodized salt, .98%; irradiated yeast, .02%.

Concentrates were fed according to initial levels of 4% FCM production and amounts were decreased weekly at a uniform rate. Chopped alfalfa hay was fed free choice and 3 lb. of dried molasses beet pulp were fed daily. Stomach tube samples were taken from each cow twice during each experimental period, and volatile fatty acids were measured by column chromatography. Milk was analyzed both for per cent fat and for per cent solids not fat.

The effect of feeding pelleted grain on average milk production, per cent fat, per cent solids not fat and 4% fat corrected milk is shown in Table 2. Figures 1 and 2 show milk production and per cent fat in the milk by advancing weeks of the experiment. The results of this experiment compare with those of Adams and Ward to the extent that both experiments show a reduction in per cent fat in the milk. However, unlike the studies by Adams and Ward, an increase in milk production was obtained in our experiment.

Dr. T. H. Blosser

AUTHOR — After growing up on a dairy farm in northern Indiana, the author of this article attended Purdue University and was awarded a B.S. degree in agriculture in 1941. He received a Wisconsin Alumni Research Foundation Assistantship for graduate study at the University of Wisconsin and obtained his M.S. and Ph.D. degrees there after serving from 1942-46 in the army as an officer in the medical administrative corps. Dr. Blosser went to Washington State University as an assistant professor in 1948 and was advanced to associate professor in 1952. Since 1958 he has been a full professor in the department of dairy science. His research has been in the fields of milk fever and ketosis in dairy cows, milk replacers, dehydrated forage, forage quality and rumen physiology.

Volatile Fatty Acids

Changes in amounts or proportions of volatile fatty acids are sometimes used as an explanation for effect of diet on fat test in milk. In the experiment reported by Blosser and Shaw, the volatile fatty acids in the rumen ingesta were as shown in Table 3.

Total acids were 112.86 and 113.92 micromoles per milliliter for cows on pellets and ground concentrates, respectively. It can be seen from these data that there were essentially no differences either in proportions of volatile fatty acids produced, or in the total acids, when pelleted concentrates were compared with ground concentrates.

Heated Starch

Heated starch (bread, flaked maize, etc.) has been reported (Balch J. Dairy Res., 22:60. 1955; Shaw, J. Dairy Sci., 40:635. 1957) to have the effect of lowering per cent fat in the milk. Thus, temperature readings were taken on the pellets. Readings taken at the point where the pellets

FIGURE 1. Average Daily Milk Production of Cows on Pelleted and Ground Concentrates

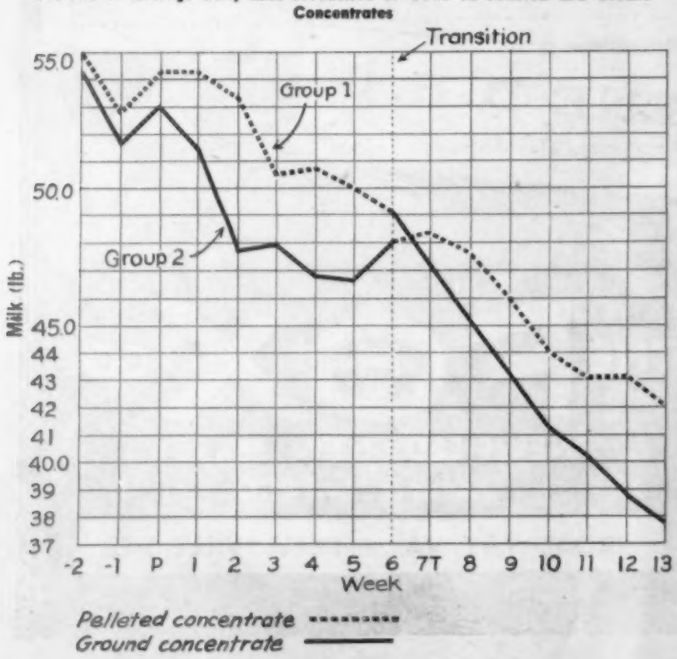
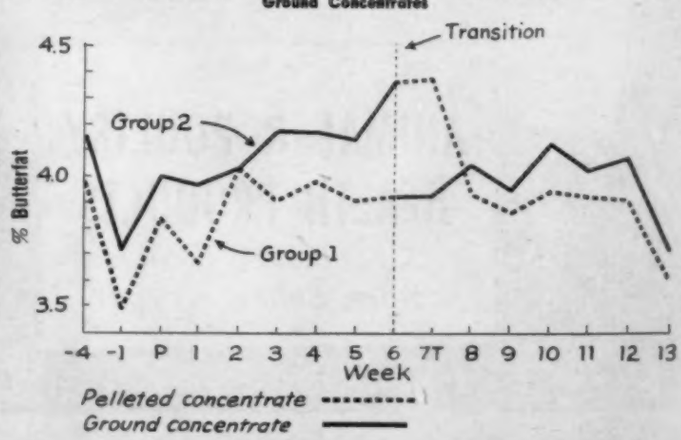


FIGURE 2. Average Percent Butterfat in the Milk of Cows Eating Pelleted and Ground Concentrates



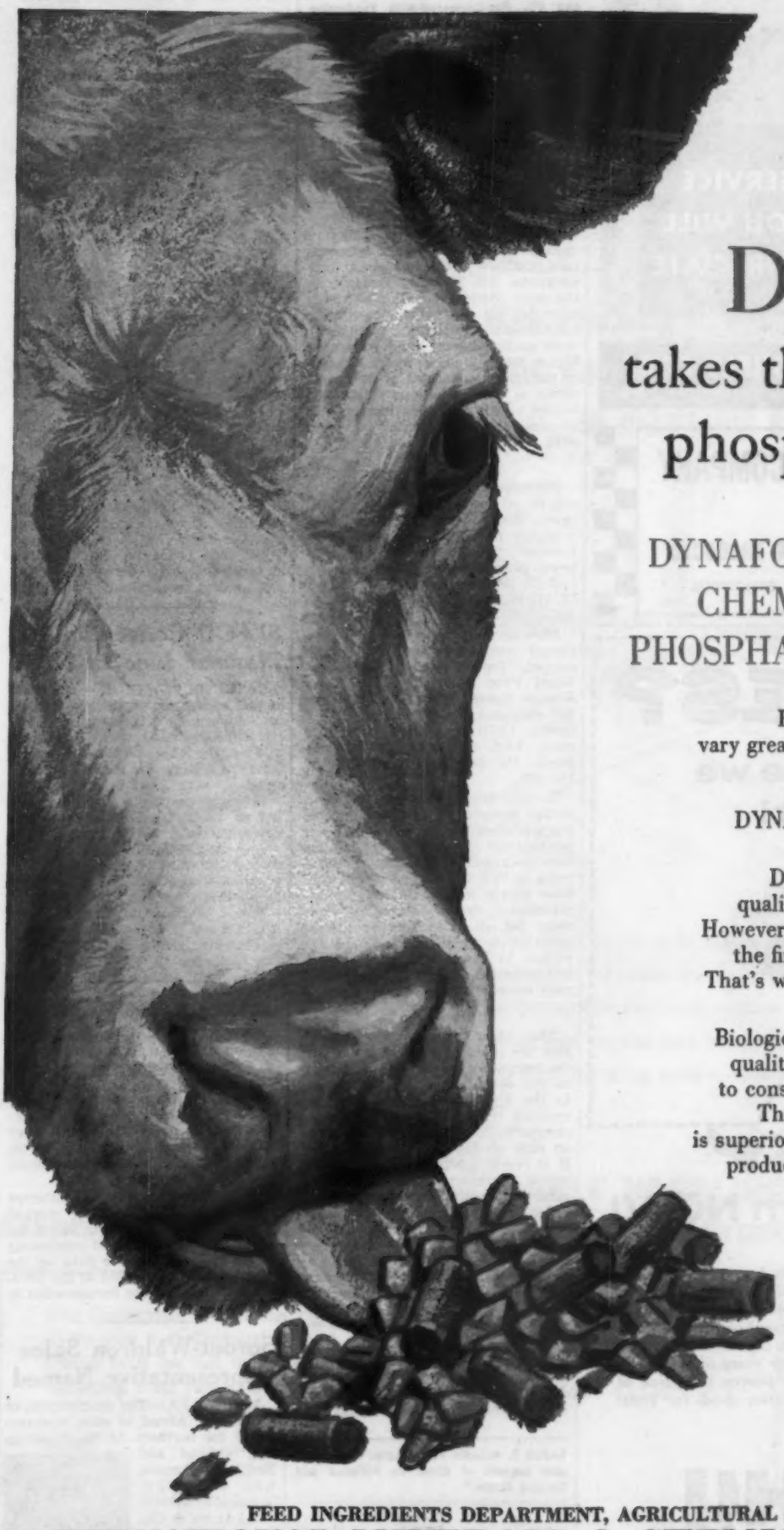


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TABLE 2. Average Daily Milk Production, and 4% Fat-Corrected-Milk Production and Percent Fat and Solids-Not-Fat of Cows on Pelleted and Ground Concentrates.

Item studied	—Physical form of— concentrates Pelleted	Ground
Milk, lb./cow/day	47.9	44.7
4% FCM, lb./cow/day	47.5	45.5
SNF, %	8.59	8.61
Butterfat, %	3.89	4.07

were discharged from the pelleting machine showed an average temperature of 150.8° F. Since highest temperatures are probably reached at the point where the feed is extruded through the die, actual maximum temperatures to which ingredients were subjected were likely somewhat higher than the above figure. Whether the starch contained in the ingredients in the concentrate ration was heated to a high enough temperature to cause the depression of fat noted with heated starch is not known.

Other Tests

Fineness modulus tests were also run on all feeds used in this experiment. The pelleted concentrate had a higher per cent of fine materials because: (1) The barley and oats were ground before being pelleted and (2) because there is some degree of attrition in passing through the die.

More recently a third study was reported comparing pelleted with coarsely ground grain. (Tigges and Ward, Proc. West. Div. Am. Dairy Science Assoc., 1959). The grain mix fed consisted of 29.4% corn, 24.5% barley, 19.7% oats, 9.8% cottonseed meal, 9.8% wheat bran, 4.8% molasses, 1% dicalcium phosphate and 1% salt.

In this study, consisting of four 30-day periods, 27 cows on pelleted grain produced more milk of a lower per cent fat. However (as the authors have indicated), the observed differences in this study were probably at least partly attributable to the experimental design, since all cows were fed either pellets or ground grain at the same time and since the periods in which they received pellets preceded the periods in which they received ground grain.

Discussion

The experimental work showing that the physical state of a hay and the heating of starch causes changes in per cent fat in the milk points to the importance of carefully examining the effect of any proposed change in processing (e.g. pelleting) on milk production and composition. It is important to remember that it is not necessary to change proportions or amounts of ingredients in order to alter milk secretion. Research work on this subject should include not only a study of per cent fat, but also solids-not-fat and protein, since the latter will assume continually greater importance as the milk pricing system changes to more recognition of the non-fat-solids portion of milk.

From a practical standpoint, the significance of pelleting grain for dairy cows lies in how it will affect net returns for the dairy farmer. If the results obtained in the Washington experiment (decrease in per cent fat, increase in milk production, increase in 4% FCM, no change in solids-not-fat) are typical of changes which can be expected when pelleted grain is fed, net returns from the sale of milk would likely be altered very slightly if at all. Under these conditions, the increased cost of pelleted feed would need to be compared to the several advantages of pelleting. If, on the other hand, a decrease in per cent fat is not accomplished by an increase in milk production (Massachusetts study), pelleted grain would have the disadvantage of resulting in a lower cash return from milk sales.

More reseach is needed to: (1) Verify or disprove the results of experiments conducted thus far and (2) to establish the conditions under which pelleting of the concentrate will alter milk production and composition. Also, if the volatile fatty acid picture is not affected by pelleting (Washington study), more basic research is necessary to determine why milk fat test and milk production are altered.

It is the opinion of the writer that pelleted grain offers enough advantages over ground grain under many conditions of feeding dairy cows, and that the depression of fat test is so small, that pelleted grain will play an increasingly significant role in the feeding of dairy cattle.

TABLE 3. Volatile Fatty Acids in the Rumen Ingesta of Cows on Pelleted and Ground Grain.*

Acid	Physical form of grain Pelleted molar %	Ground molar %
Acetic	65.13	65.55
Propionic	17.89	17.60
Butyric	12.87	12.73
Valeric	2.47	2.33
C 6 and higher	1.60	1.86

*Rumen samples from three cows on pellets and the same three cows on ground grain. Average of two rumen samples per cow on each treatment.

SFFCO Convention Planned June 21-22

GATLINBURG, TENN.—The 18th annual convention of the Association of Southern Feed & Fertilizer Control Officials will be held here June 21-22 at the Riverside Hotel. Sessions June 20 will be for control officials only.

Reservations can be made by writing to James T. Trotter, manager, Riverside Hotel, Gatlinburg.

Any suggestions or requests for further information concerning the program should be directed to Maurice B. Rowe, secretary-treasurer, Association of Southern Feed & Fertilizer Control Officials, Department of Agriculture, 1119 State Office Building, Richmond 19, Va.

Bovine Ketosis Grant

NEW YORK, N.Y.—Bovine ketosis is being studied under a grant awarded Cornell University by American Cyanamid Co.

Dr. R. G. Warner and Dr. J. K. Loosli, who are conducting the ketosis studies under the grant, have planned research to obtain a better understanding of the basic metabolic cause of malfunctions.

In their studies they will attempt to learn the reasons for the marked differences in blood sugar levels between nonruminating and ruminating calves and obtain basic data on the intermediate metabolism of the products of carbohydrate fermentation in the rumen.

Sprout-Waldron Sales Representative Named

MUNCY, PA.—The appointment of William H. Alsted as sales representative for northern Idaho, Washington, Oregon and British Columbia, has been announced by Sprout, Waldron & Co., Inc.

W. H. Alsted

Mr. Alsted was formerly a serviceman for the firm in the same area. He joined the firm in 1954, after 11 years with Alsted Manufacturing Co., Truesdell, Wis. He studied at the University of Alabama from 1938 to 1942.

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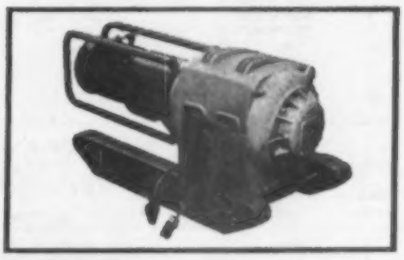

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Collaborative Evaluation of Proposed ANRC Vitamin A Reference Standard

By James C. Fritz, Murray J. Smidt and John Jackson
Dawe's Laboratories, Inc., Chicago

A quantity of the proposed ANRC Vitamin A Reference Standard, Batch 1, was received from Dr. S. R. Ames. This was used at the assigned value of 9,250 I.U. per gram. It was compared with a thoroughly assayed lot of gelatin protected vitamin A material previously used as a reference standard in our laboratory. This will be referred to as the old reference standard. The potency assigned was 28,650 I.U. per gram.

The two vitamin A sources were compared by three bioassay techniques, plus the supporting chemical analyses. (1) Chick growth was measured over a four-week period when the vitamin A was added as a dietary supplement to contribute 0, 200, 400, 800 or 1,600 I.U. units per pound of ration. (2) Liver storage tests were made following a seven-day feeding period when the diet was supplemented with 10,000 or 25,000 units per pound. (3) Liver storage tests were made 48 hours after the chicks were individually given 2,000 or 4,000 units orally by capsule.

EDITOR'S NOTE: The accompanying articles are additional papers in a series from the annual meeting of the Animal Nutrition Research Council. One section of the meeting was devoted to reports on collaborative evaluation of the proposed ANRC vitamin A reference standard. In the article below, Dr. Stanley R. Ames explains the proposed standard, and in the accompanying article, James Fritz and associates tell of their work on evaluation of the standard. Another vitamin A paper will appear in a subsequent issue of Feedstuffs.

TABLE 1

	%
Ground degermed white corn	65.12
Dehulled soybean oil meal	20.00
Crude casein	5.00
Corn distillers dried solubles	5.00
Ground limestone	2.00
Dicalcium phosphate	2.00
Sodium chloride	0.50
B-vitamin premix (2-4-9-10)	0.10
Choline chloride dry mix (25%)	0.10
Vitamin B_{12} supplement (6 mg./lb.)	0.05
Penicillin feed supplement (4 gm./lb.)	0.05
Trace mineral supplement	0.05
Sterol Vitamin D_3 (1,500 ICU/lb.)	0.03
	100.00

The chicks were a cross-bred broiler strain. Groups of 14 straight run chicks were housed in screen floored batteries under the usual laboratory conditions. Composition of the basal ration used for the two diet supplementation tests is shown in Table 1.

Chicks used for the capsule feeding were held, prior to test, for two weeks on a normal (not vitamin A deficient) chick starter. These chicks were held for 48 hours after the one capsule feeding, and then killed for liver analyses (Ames, et al, 1958).

ANALYTICAL METHODS — Samples were drawn by probe from the reference materials and from the mixed feeds. These were anlyzed for vitamin A content by the saponification, chromatographic and colorimetric procedure as described in the AVC Methods of Vitamin Assay (1951). Our experience with the method indicates that it is reproducible within ±2% with high potency samples, but that it is more erratic when applied to low potency feeds.

The pooled livers from each group of chicks were divided into two samples. Each sample was saponified and vitamin A extracted by the method of Davies (1933). The vitamin A was then measured colorimetrically, as in the AVC method noted above, and the results were expressed in I.U. per liver.

RESULTS—Chemical Anlyses: The proposed ANRC Vitamin A Reference Standard was assayed when first received and again after two months storage in a brown bottle at room temperature. The values found in our laboratory were 9,150 I.U. per gram when received and 9,000 I.U. per gram after two months storage. These were single determinations, and we doubt if they should be considered significantly different from the assigned value of 9,250 I.U. per gram. All chick tests were made with levels of vitamin A calculated on the basis of 9,250 I.U. per gram of the proposed ANRC Vitamin A Reference Standard.

The analysis on the chick diets gave us the data in Table 2.

Chick Growth Bioassay: A four-week growth test was conducted with graded levels of the two vitamin A standards. Observations are recorded in Table 3.

Diet Supplement — Liver Storage Test: Following a seven-day depletion period, the chicks in groups 10-13 were given a diet containing vitamin A added to furnish 10,000 or 25,000 I.U. per pound of feed. After receiving the supplemented diets for 7 days, the chicks were killed for liver storage measurements. Data in Table 4 were obtained.

Oral - Supplementation Bioassay: Five groups of chicks were held for 14 days on a normal starter ration. Each chick was then given a single feeding of either 2,000 or 4,000 I.U. vitamin A by gelatin capsule. Forty-eight hours later, the chicks were killed and livers were removed for vitamin A determination. Values found are reported in Table 5.

COMMENTS — Various discrepancies in the data are believed due to the small number of chicks and to the small number of replicates in the chemical determinations. Further studies are needed to reconcile these points. However, the following tentative conclusions are indicated:

1. By each of the three bioassays, a graded response, according to dose, was obtained.
2. The proposed ANRC Vitamin A Reference Standard compared favorably, in all tests, with the reference material previously used in our laboratory.

TABLE 2

Diet No.	Added vitamin A — Source	Added vitamin A — I.U./lb.	Vitamin A found — I.U./lb. of diet	Vitamin A found — % of cal'd add'n
1	None	0	54	..
2	ANRC Standard	200	264	105
3	ANRC Standard	400	440	96
4	ANRC Standard	800	890	104
5	ANRC Standard	1,600	1,700	103
6	Old Standard	200	253	100
7	Old Standard	400	405	88
8	Old Standard	800	875	103
9	Old Standard	1,600	1,657	100
10	ANRC Standard	10,000	9,700	96
11	ANRC Standard	25,000	23,835	95
12	Old Standard	10,000	10,400	103
13	Old Standard	25,000	22,110	88

TABLE 3

Chick lot No.	Vitamin A added to feed — Source	Vitamin A added to feed — Cal'd I.U./lb.	Av. wt. of chicks at 4 weeks (g)	Feed consumed per chick (g)	Mortality No. dead out of 14 started
1	None	0	204	314	11
2	ANRC Standard	200	246	457	1
3	ANRC Standard	400	293	515	3
4	ANRC Standard	800	332	612	1
5	ANRC Standard	1,600	368	611	1
6	Old Standard	200	241	398	1
7	Old Standard	400	294	519	0
8	Old Standard	800	317	565	0
9	Old Standard	1,600	343	610	0

TABLE 4

Chick lot No.	Vitamin A added to feed — Source	Vitamin A added to feed — Calc'd I.U./lb.	Supplemented feed consumed grams/chick	I.U. per liver — A	I.U. per liver — B	I.U. per liver — Average	% stored in liver
10	ANRC Standard	10,000	177	1300	1330	1315	34
11	ANRC Standard	25,000	142	3571	3792	3682	47
12	Old Standard	10,000	164	1300	1300	1300	36
13	Old Standard	25,000	164	3570	3750	3660	41

TABLE 5

Chick group	—Vitamin A given by capsule— Source	—Vitamin A given by capsule— I.U.	—I.U. Vitamin A per liver— A	—I.U. Vitamin A per liver— B	—I.U. Vitamin A per liver— Average	Per cent recovery
A	None	0	255	275	265	..
B	ANRC Standard	2,000	1,500	1,600	1,550	64
C	ANRC Standard	4,000	2,555	2,555	2,555	57
D	Old Standard	2,000	1,162	1,162	1,162	45
E	Old Standard	4,000	2,150	2,800	2,475	55

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Ames, S. R., Swanson, W. J., and Harris, P. L.—A chick liver-storage biological assay for determining the biological availability of vitamin A; Informal Poultry Nutr. Conf., Philadelphia, Pa., April 13, 1958.

Association of Vitamin Chemists—Methods of vitamin assay; Interscience, N.Y., 2nd Ed., pp. 26-35, 1951.

Davies, A. W.—The colorimetric determination of vitamin A by the alkaline digestion method; Biochem. J., 27:1770-4, 1933.

• • •

Proposed ANRC Vitamin A Reference Standard

By Dr. Stanley R. Ames
Distillation Products Industries
Rochester, N.Y.

Eleven years ago, at the 1948 meeting of the Animal Nutrition Research Council, the USP biological assay for vitamin A was discussed, evaluated and suggested revisions made through Dr. C. I. Bliss. The USP Vitamin A Reference Standard was defined as a solution of crystalline vitamin A acetate in cottonseed oil. The problem was considered solved.

However, Mother Nature thought otherwise. Our knowledge of vitamin A has increased tremendously in recent years. Six isomers of vitamin A are now known, four of which are of commercial importance. They differ markedly in biological activity and in spectrophotometric properties. The commercial development of dry forms of vitamin A has focused attention on problems of stability and availability. These many factors were carefully considered in the formulation of the proposed ANRC standard.

The proposed ANRC Vitamin A Reference Standard is a gelatin-stabilized oil solution of all-trans-vitamin A acetate at a potency of about 10,000 USP units per gram. It was prepared from the USP Vitamin A Reference Solution (100,000 units/gram), gelatin and sucrose with a mixture of BHA and BHT added as antioxidants. Preliminary studies of this product showed it to have excellent stability and high biological availability. It meets most of the criteria we have established for the ANRC reference standards. Since it was prepared from highly purified all-trans-vitamin A acetate, its isomeric nature is established. The results of chemical and spectrophotometric analyses can be reliably translated to biological activities.

Batch 1 of the proposed vitamin A standard was prepared last spring in the DPI Laboratories. Samples were sent to the analytical laboratories of

(Turn to VITAMIN A, page 69)

TABLE 1. Proposed ANRC Vitamin A Reference Standard

Batch 1. Results of Collaborative Assay (Means of Duplicate Assays)

Laboratory	Unsap. E(1%,1cm.) 325 mμ	Morton & Stubbs Factor	Unsap. Blue Color	USP XV Potency
			u/g	u/g
A	5.06	0.998	9,490	9,250
B	5.128	1.013	9,580	9,380
C	4.914	0.992	9,190	9,050
D	5.125	0.998	9,390	9,320
Means (4)	5.057	1.0003	9,410	9,250

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Brands, Creative Selling Stressed At Poultry Meeting

KANSAS CITY—Poultry and egg men were urged to create brand value, stress creative selling and focus efforts on the consumer here this week at the Institute of American Poultry Industries' 31st Fact Finding Conference.

"The way out of price competition—and the key to company growth—is to create in the consumer's mind the idea that your brand is something special and different," Pierre Martineau, director of research and marketing for the Chicago Tribune, told the group. He stressed the idea of making the brand more desirable.

Harold Williams, president of the institute, pointed to creative selling as "the only way out of our present dilemma." Mr. Williams said that without creative selling, an increase in volume may reduce prices more than it reduces costs."

Robert T. Browne, director of marketing development for The Pillsbury Co., Minneapolis, urged poultry and egg companies to "take a new approach—focusing thinking and efforts on what the consumer likes and will buy rather than on what companies want to produce." He said that the alternative would be that the problems of the industry would continue and perhaps get worse.

Additional Comments

Mr. Martineau cited numerous examples of companies that have used advertising, packaging and other promotional devices to distinguish their products from competing brands, even though there is little technical difference.

"Financial reports," he said, "show that these companies have a much higher profit ratio than companies which just sell a good product at a competitive price."

He pointed out—"to an industry that prides itself on its achievements in production" that "there is more involved in selling and manufacturing than just producing a product."

Value Created

"Value," he said, "is not an exact absolute. It is something which exists in people's minds. The value of a product depends on how desirable it is—on how much people want it. Anything you do to make your brand seem more desirable increases its value."

Mr. Martineau said any benefits from price cutting are usually only temporary. Customers may be switched back and forth, but generally everybody winds up with about the same share of the market he had before—and less profit.

"Cutting prices isn't imaginative selling," Mr. Martineau insisted. "It isn't resourceful marketing. And it isn't the only recourse. It is possible to create distinctions for your brand apart from price, in the buyer's mind. And it is imperative to do so."

Because most meat packers have failed, he said, to create such distinctions, pricing of their products is almost entirely in the hands of the grocery chains, who say, "This is the price we are going to pay, and you can take it or leave it. Your costs are not our problem."

Mr. Martineau believes management is inclined to think too much about the product and the price—and too little about the buyer and why she buys.

"Suicide"

Mr. Williams, in stressing creative selling, told poultry and egg men that depending on volume alone for profit could lead to "suicide."

"Look in your ledgers," he told the poultry businessmen. "See how much money you've invested in new equipment—so you could operate more efficiently. But how much money—or time—have you invested so you could sell more effectively?

"What makes you think you can get away without investing money to develop your sales organizations, to improve your selling techniques, to create and merchandise new products.

"You are selling in a $76 billion food industry. It is fiercely competitive. Amateurs get liquidated in a hurry.

"Price alone won't keep eggs on the breakfast table—or chicken and turkey on the dinner table. Processors and manufacturers of other foods are selling their products with new marketing concepts. We have to compete with them—not only with their prices, but with their ideas.

"Today," Mr. Williams said, "you don't expect to operate efficiently unless you are properly equipped. How can you expect to sell effectively unless you are equipped with men who have managerial talents instead of only technical skill?"

He listed three requirements for such men.

"They must be scientifically alert," he said, "so they can see changes coming and adjust to them.

"They must be intellectually capable of developing and dealing in managerial principles and marketing ideas, instead of simply operating on price.

"They must have the moral courage to think and act differently when their judgment indicates it is necessary."

Consumer Most Important

The consumer, not the corporation, has become the center of the business universe, Mr. Browne said.

Marketing, Mr. Browne declared, can't just end with the consumer. It has to begin with the consumer. Concern for the final user of the product must start with top management and radiate from there to the people involved in all functions of the company—production, research, procurement and accounting.

"The modern marketing concept," Mr. Browne said, "is the efficient movement of the best possible product to it user—with profit to both user and producer."

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Report on Trace Minerals Is Issued

CHICAGO—A report by Dr. Gustav Bohstedt, emeritus professor of animal husbandry, University of Wisconsin, on the importance of trace minerals in animal production has been issued by the Salt Institute.

In the report, Dr. Bohstedt urges use of fortified salt as a preventive, instead of a treatment for already deficient animals. "Thus, we can avoid the deficiency losses lurking, figuratively, in most of our backyards."

Dr. Bohstedt notes that a number of trace mineral elements serve as catalysts and as components of enzymes and vitamins.

"Let us not learn the hard way the lesson of the importance of the infinitesimal—these trace minerals in nutrition," he said.

Dr. Bohstedt listed a number of reasons for concern over possible mineral deficiencies in livestock.

He points out that during recent decades there has been a sort of "creeping expansion of areas identified as deficient in one or more trace minerals.

"We have research reports from state experiment stations ranging from New Hampshire and New York on one end, and Kansas and the Dakotas on the other end, telling of favorable results with cobalt or with trace minerals in general," he said. "These favorable results were obtained with swine, cattle and other livestock rations."

He notes that there is no single or as yet generally accepted formula for trace mineral salt. "It should contain significant amounts of trace minerals which are recognized as essential for animal nutrition," he said.

Dr. Bohstedt notes that in order to be recognized by the Association of American Feed Control Officials, trace mineralized salt "must contain significant amounts of trace minerals which are recognized as essential for animal nutrition."

USDA Notes Reseal Program on 4 Grains

WASHINGTON—The U.S. Department of Agriculture has announced a reseal program on four farm-stored price-supported grains.

The reseal program will permit farmers in certain areas to keep farm-stored 1959-crop corn, wheat, barley and grain sorghums under price-support loans for another year following maturity dates of original loans in 1960. In addition, price-support reseal loans already in effect on 1958- and 1957-crop corn and wheat, 1958-crop grain sorghums and barley, and 1956-crop corn are being extended for another year.

Estimated carryovers of these grains will be at record levels this year and substantially higher than the carryovers at the time 1959-crop harvests began, USDA said.

Under the reseal program, a farmer earns storage payments during the time the grain is under reseal. In addition, they provide an incentive for keeping feed grains available locally in production areas for later use or sale. Storage payments to producers for the entire reseal period will be in line with the new storage rates to be effective under the Uniform Grain Storage Agreement between the Commodity Credit Corp. and commercial warehousemen July 1, 1960.

Poultry Inspection Report Released

WASHINGTON — A total of 1,607 million head of chickens, turkeys and ducks were inspected during 1959 under the Poultry Products Inspection Act and under the voluntary inspection program carried on by the U.S. Department of Agriculture.

Poultry used in canning and other processed foods during December, 1959, increased substantially from December, 1958. Poultry used for these purposes totaled 28 million lb. ready-to-cook weight, an increase of 26% from the quantity used the same month in 1958.

The number of head and pounds (live weight) of poultry inspected by USDA by classes was: Young chickens, 1,415 million head, 4,679 million lb.; mature chickens, 112 million head, 553 million lb.; young turkeys, 50 million head, 915 million lb.; old turkeys, 3 million head, 53 million lb.; fryer-roaster turkeys, 17 million head, 136 million lb., and ducks, 9 million head, 54 million lb.

During 1959, 4,751 million lb. (ready-to-cook weight) of poultry were certified as wholesome. Of this amount, 3,431 million lb. were young chickens, 393 million lb. mature chickens, 734 million lb. young turkeys, 43 million lb. old turkeys, 106 million lb. fryer-roaster turkeys and 40 million lb. ducks.

Poultry used in canning and other processed foods during December, consisted of 208 million lb. of chickens and 80 million lb. of turkeys. The quantity of poultry certified under federal inspection in December was 385 million lb., ready-to-cook weight. This consisted of 266 million lb. of chickens, 117 million lb. of turkeys and 2 million lb. of other poultry.

Larro Sales Manager Is Named for Hawaii

SAN FRANCISCO — Floyd L. Church has been named sales manager for Larro Feeds in the Hawaii district, according to a General Mills, Inc., announcement.

Floyd L. Church

Mr. Church will move to Honolulu from San Francisco to succeed Gordon Baldwin, who was transferred to other feed sales responsibilities on the mainland.

been with the firm in California holding a variety of sales and feed sales promotion positions during his 35 years with the firm.

Roller Chain Model Horizontal Pellet Cooler produced in 10 sizes in both single stage and two stage coolers.
SETTING New Standards for the Industry in Liquid Feed Mixing, Pelleting and Cooling Equipment. Wenger Engineered for Progress. For Improving Quality, Production, Sales and Profits—Why Go Halfway—Go Wenger!
Multi-Duty Pellet Mill. 50 HP and 100 HP sizes for finest quality Hard Pellets, Wengerblended Mash Feeds and (optional) Hi-Molasses Pellets. A full line of feeds from a single piece of equipment.
Hi-Molasses Pellet Mills. 50 HP and 100 HP sizes. For production of beef and sheep supplements with 25-50% molasses.
THE WORLD'S FINEST Wenger MILLING MACHINERY
1250 Series Mixer. Capacities on liquid mixing to 60 tons per hour. Two smaller sizes available.
Multi-Blenders. For individual or simultaneous application of several liquids. Available in 3 sizes, capacities to 60, 20 and 10 tons per hour respectively.
Inclined Belt Conveyors. For hot pellets, cooled pellets and crumbles, or molasses mash feeds.
Molasses Feed Mixers in 4 sizes with hopper bin model feeders.
Dressers and Blenders. 4 sizes with capacities of 10, 20, 40 and 60 tons per hour.
Liquid Conditioning Feeders. For molasses, fats and fish solubles.
Liquid Feed Mixers without liquid conditioning feeders in 3 sizes and available with hopper bin model feeders or inclined auger feeders.
Metered Flow Pumps. 2 sizes in Bronze (molasses or fish) and Iron (fats).
Designed today to meet tomorrow's production problems. Wenger Pellet Mills, Coolers and Liquid Mixers insure top capacity, top quality and a size for every requirement. Designed and built to Wenger's famed standards of the finest materials and engineered to minimize labor, equipment costs and contamination hazards. Wenger equipment is designed for the mill which wants a real return from every dollar invested.
Molasses Feed Mixers in 3 sizes with inclined auger feeder.
Wenger Storage Tank Pumps, in 3 sizes.
Write for literature and full information.
Wenger Mixer Manufacturing
SABETHA, KANSAS
PHONE 111
Standard of the Industry for Liquid Feed Mixing, Pelleting and Cooling Equipment.

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YEAST CULTURES
For 30 Years a Proven Source of Unidentified Growth Factors, Digestive Enzymes and B Vitamins. Better Assimilation—Better Feeds. Write
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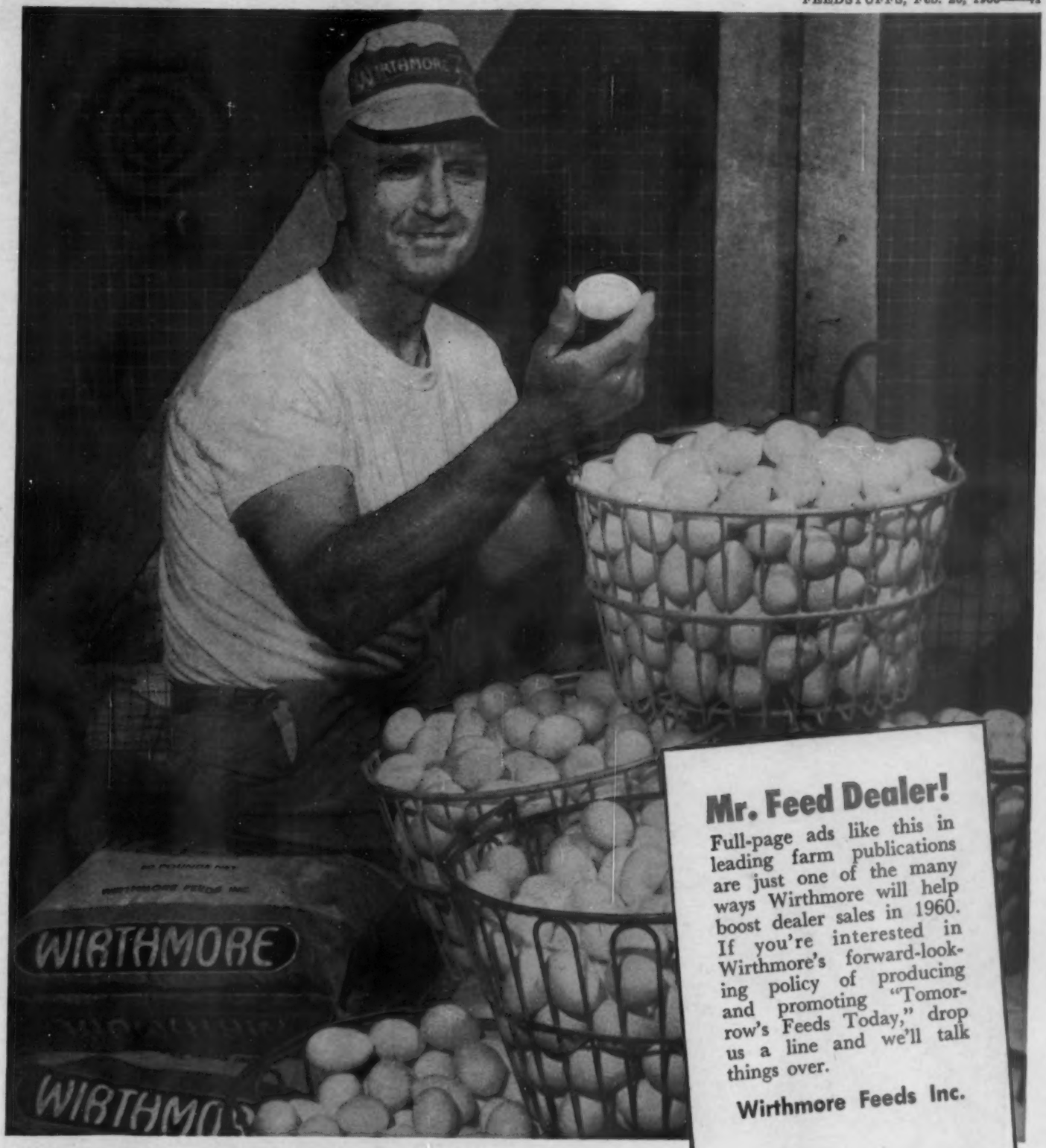

Mr. Feed Dealer!

Full-page ads like this in leading farm publications are just one of the many ways Wirthmore will help boost dealer sales in 1960. If you're interested in Wirthmore's forward-looking policy of producing and promoting "Tomorrow's Feeds Today," drop us a line and we'll talk things over.

Wirthmore Feeds Inc.

240.5 eggs per bird housed (11½ months) with Wirthmore 36% poultry concentrate and own grains.

"The quality of Wirthmore Feeds as well as the service of their dealer and their poultry serviceman have been responsible for the results I have gotten. I would recommend Wirthmore Feeds to any poultryman who is interested in getting good results."

Paul E. Hepworth
Montague, Michigan

FOR BEST RESULTS, FEED

WIRTHMORE®

Concentrates & Complete Feeds

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- Toledo, Ohio
- Brattleboro, Vt.
- St. Albans, Vt.
- Concord, N. H.
- Bridgewater, Mass.
- Preston, Md.
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UNISTAT®
the sign
of UNISTAT

...The No. 1 Coccidiostat

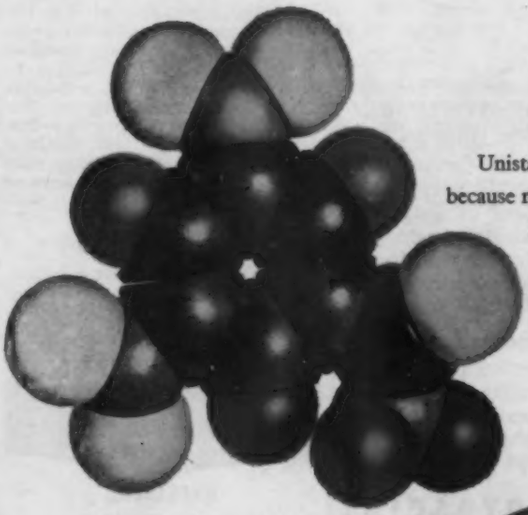
PROVIDES CONSISTENT PROTECTION AND BETTER PROFITS

Dr. Salsbury's Unistat is fed to a billion birds a year. In fact, 2 out of every 3 broilers are raised on it. Why this sudden shift to a product that's been on the market only two years?

There are two principal reasons: (1) The past two years were especially tough, so far as weather and coccidiosis are concerned. This gave Unistat a chance to prove itself under the most difficult conditions. And (2) growers soon discovered that they made more money with Unistat in the feed, because of its favorable effect on feed conversion.

That's why more and more poultrymen are turning to feeds containing Unistat. They get more consistent protection against coccidiosis *and* better profits. Why not build a better feed, one that provides these two important benefits for your customers?

Write, wire, or phone for Feed Manufacture's Guide on Unistat. It will tell you how to increase your tonnage with this unique new coccidiostat. Or, ask for a Dr. Salsbury's representative to call and personally answer your questions about the use of Unistat in your chicken starter, grower, and broiler feeds.



Unistat contains a combination of active ingredients, because no compound, complex, or other chemical entity has been found to be equally effective against all important species of coccidia in chickens. Shown here is the molecular structure of 3, 5-Dinitrobenzamide, the chemical that gives Unistat its superior coccidiostatic qualities.

Dr. SALSBURY'S LABORATORIES
Charles City Iowa

NATIONWIDE SERVICE TO THE FEED INDUSTRY

DEHYDRATED
and
SUN-CURED
ALFALFA MEAL
Pellets • Crumbles
Bagged • Bulk
THE A. B. CAPLE CO.
Toledo 5, Ohio

Southeast Panelists Rate Price, Quality As Egg Sale Keys

ATLANTA, GA. — Speakers in a panel discussion at the Southeastern Poultry & Egg Assn. convention rated price and quality as the two most imported factors influencing egg sales.

Although the panelists came up with no solution for the present egg pricing setup, speakers gave their views on current practices.

Members of the panel were: Dr. J. C. Huttar, Cooperative Grange League Federation Exchange, Ithaca, N.Y.; Gorden Urner, Urner-Barry Co., New York; C. W. Knauf, Weinburg Bros. & Co., Chicago; Glen Woodard, Winn-Dixie Stores, Jacksonville, Fla., and Dr. J. Clyde Driggers, University poultry department head, moderator.

"Where'd you put the new bag of turkey mash, Son?"

Panelists voiced opposing views on the net effect of selling eggs as loss leaders. But most believed that it is harmful in areas where producers are engaged in direct selling. However, they felt that if it is not done too frequently, loss leadering of eggs can help stimulate egg use.

Mr. Knauf said that the Chicago Mercantile Exchange aids in keeping the egg price up by permitting storage and allowing for more orderly distribution of eggs at higher prices later. Mr. Knauf briefly sketched the development of the exchange and told how he believed it "a useful tool for the producer or handler who wishes to hedge his operation as well as for the speculator who seeks to make a killing by dealing in futures."

Mr. Urner said he believed that poultrymen and others had made a mistake in not fully participating in the day-to-day development of market operations, in his comments on the New York market. He stated that wider continuous representation on the New York Mercantile Exchange would be quite important in helping maintain price stability.

Mr. Woodard said that he has a competitive situation to face and often must use eggs as a loss leader or at least at a low "competitive" price. However, he said he prefers to get his markup on a higher-priced product.

Mr. Huttar said that price is the largest single factor affecting profit or loss in the egg operation. He listed one of the big goals of GLF is to get eggs produced as close as possible to the points of consumption. Mr. Huttar also noted his co-op's grade-yield payment basis and explained that a 5% increase in grade yield is equal to a cent a dozen increase in price.

FEED LOT OPENED

TUCSON, ARIZ.—Frank and Helena Harrison have opened the new Harrison's Feed Lot in South Tucson.

"does FORTRACIN® stimulate growth?" you bet it does!

Bacitracin Methylene Disalicylate (U. S. Patent No. 2,744, 712)

OUR $5,000 "DOLLARS-FOR-DATA" OFFER PAYS YOU TO PROVE IT!

First question every nutritionist asks about a feed supplement is: *Does it do any good?* With FORTRACIN the answer is simple: *It does!*

Recent broiler tests conducted by the Wisconsin Alumni Research Foundation proved FORTRACIN's effectiveness in promoting growth.

BETTER THAN ANTIBIOTICS NOW USED!
Fed at the economical level of 4 grams per ton FORTRACIN produced greater weight gains than penicillin and zinc bacitracin. Feed efficiency was significantly higher, too.

COSTS YOU LESS!
In addition, FORTRACIN is stable when pelleted and in storage. Yet, despite its superiority, FORTRACIN *actually costs less than other salts of bacitracin!*

FORTRACIN is available from Penick in three concentrations of antibiotic activity — 10, 25 and 100 grams per pound, and in combination with penicillin. If you prefer, we can recommend suppliers of FORTRACIN pre-mixes.

ASK ABOUT OUR $5,000 OFFER!
It pays you for reporting results with FORTRACIN fortified feed. For W.A.R.F. test data on growth promotion and stability and for price list return the coupon today!

Now... fortify your feeds with **FORTRACIN!**

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Division of International Basic Economy Corporation
1900 West 96th Street, Cleveland 2, Ohio

Purina Dealer Gleason M. McCubbin (left) and Dealership Manager Joseph Goodin discuss plans to serve a growing market.

"We give service to earn the loyalty of our customers"

—says Gleason M. McCubbin, Hardin County Milling Company, Elizabethtown, Kentucky

"It takes alert, flexible service to meet the needs of a diversified and growing market such as we have around Elizabethtown," says Mr. McCubbin. "Our Purina Service Center is tailor-made for our market.

"We are prepared to serve the growing community of part-time farmers who use agriculture to supplement their employment income. These folks appreciate the feeding and management advice of our Purina-trained staff members and they like the convenience of our delivery and full line of Purina products.

"At the other extreme are the farmers who make agriculture a business. We have Check-R-Mix service and bulk delivery to serve them. We operate commercial-size demonstrations and provide livestock weighing service so they can see the results they get.

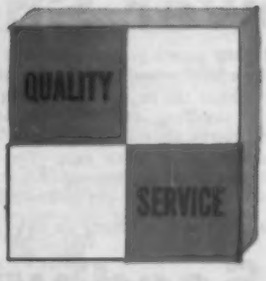
"We expect our market to change. We expect to pioneer changes, originating with Purina Research. Our Service Center will progress with the times."

* * * *

"If you do what Purina suggests, you're bound to sell Chows," says Mr. McCubbin. "Purina Salesman William Allen works with us as a 'partner.' He brings us tested Purina sales plans and helps us carry them out. He aids us in holding group meetings and in selling to key customers. Purina training has equipped our staff to give real farm service."

Hardin County Milling Company makes a delivery of bulk feed to a breeder flock owned by Hatcheryman Garland Harlow. The dealership also serves commercial flocks, including caged hens which the staff introduced.

Manager Goodin (left) and Farmer Tommy Keeton look over the dealership's commercial-size hog demonstration. There's a brood herd of Herefords on the same farm.



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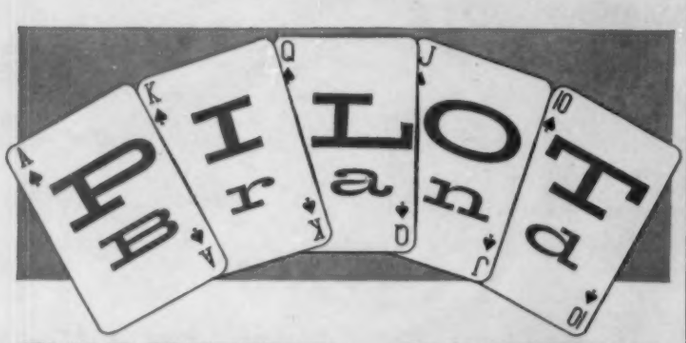
Good Deal
for Dealers!



OYSTER SHELL

Steady sales . . . good profits . . . fast turnovers . . . satisfied customers. You get all of these with PILOT BRAND, largest selling eggshell material in the world. And to keep this profitable business coming your way, PILOT BRAND is continuously advertised in leading farm and poultry journals and on 70 prominent radio stations.

Yes, PILOT BRAND Oyster Shell is a good deal for you . . . all of the time. It pays in a big way to stock, display and promote the "bag with the big blue Pilot Wheel."

FOR POULTRY
PILOT BRAND OYSTER SHELL

Oyster Shell Products Company
Mobile, Alabama

Genuine Cane BLACKSTRAP MOLASSES
NORTH AMERICAN TRADING & IMPORT CO., INC.
LARGEST IMPORTERS OF BLACKSTRAP MOLASSES IN THE UNITED STATES
1429 WALNUT STREET • PHILADELPHIA 2, PA.

Power Shovel Buy!

This little 286 pound powerhouse will astonish you with its pulling force of more than 1300 pounds and work output of 100 tons per hour.

Dollar for dollar the rugged STOHR ROTO SHOVEL gives you more . . . the ease of handling, capacity, and dependable, money-saving results . . . than other power shovels costing nearly twice as much.

One man handles it with ease. You get instant, push-button stop-start action you can count on. Because it's completely portable you wheel it from job to job . . . fold back the retractable wheels when it's in use.

Contact us for the whole story on this remarkable STOHR ROTO SHOVEL

Seedburo EQUIPMENT COMPANY
618 W. Jackson Blvd. Dept. FS-2 Chicago 6, Illinois

EXTERIOR—Here is the home of Moore's Farm Supply, Selmer, Tenn. Feed is presently hauled from a mill at Memphis, but Carl Moore plans to gradually add more equipment. He also has a warehouse not shown here.

Diversified Operation Pays Off For Feed Dealer in Tennessee

By Jess F. Blair
Feedstuffs Special Writer

Adhering strictly to a diversified trade, Carl Moore, Selmer, Tenn., has steadily increased his feed sales.

Moore's Farm Supply serves an area considerably outside the immediate trade territory of Selmer, but he is not especially trying to widen this circle of customers.

"There's plenty of business here," he said. "It means selling these people all their farm needs and helping them make more money with livestock, poultry and crops."

Integration and Credit

Mr. Moore has steered clear of the completely integrated projects, but has extended credit at times. At one time he was feeding more than 100,000 broilers. However, he worked in cooperation with a hatchery which furnished the birds. Mr. Moore just provided the feed and medication and furnished some field supervision.

"The future of laying hens looked more promising," he said, "so we didn't try to talk farmers into keeping broilers, though we are still feeding out more than 20,000."

The store has been feeding 23,000 laying hens, in addition to raising started pullets for the hatchery. The hatchery furnished the baby chicks which were put out on farms, and Moore's Farm Supply hauls out the feed and gives field supervision.

Egg Marketing

"With the laying hens we are also helping with the marketing," explained Mr. Moore. "Farmers bring the eggs to our cooler room here at the store and we haul the eggs to market at Memphis, which is 90 miles from here."

In addition to these accounts, there are several small independent poultry farmers in the area, many of whom buy feed from the store.

"We've found that customer service is one of the main things in a poultry or livestock program," he said. "We are subject to call day or night, and many times go out to help diagnose an illness or look at hens or livestock. This is a free service, and even though it entails some time and driving, its importance cannot be stressed too much."

Swine Program

The store is getting well into a swine program, for which Mr. Moore has high hopes. He has worked out a plan with several farmers whereby he loans them the gilts and they raise the pigs. The store sells the farmer most of the equipment needed, all the feed and medication, and retains ownership only in the sows. The farmer sells his hogs wherever he chooses and after deducting the feeding and medication costs is allowed to keep all the profit.

"He keeps the sow as long as she is productive," Mr. Moore explained, "then we haul her back to town and sell her."

The main advantage of this plan is that the farmer has more inducement to enter the swine business because he does not need to buy the gilts, which are often hard to find. Also he can operate mostly on credit until the hogs are topped out and sold."

"In both our poultry and hog programs we are doing a small bit of integration," Mr. Moore pointed out, "but we're not getting in too deep. If the market nose-dives and looks like it will stay that way for a long time, we can pull out or retrench."

Trucks

Moore's Farm Supply has no milling equipment. At the beginning Mr. Moore bought a large truck-trailer and a bob-tailed truck. Later he added another truck-trailer capable of hauling the state load limit of 27,000 lb.

(Turn to TENNESSEE, page 53)

TRUCK—Here is one of the firm's trucks. Capacity is all that Tennessee state law will allow, 27,000 lb. Carl Moore's motto for making money with trucks is, "Keep 'em loaded and keep 'em rolling."

RELAXING — Carl Moore is shown in a moment of relaxation. In three years Moore's Farm Supply has been increasing gross sales 25-30% each year by a program of diversification.

HARDEST-WORKING COCCIDIOSTAT ON THE FARM...

NO DRUG CAN MATCH the versatility of S.Q. to help prevent *or treat* coxy outbreaks in chicks, poults, pullets...yes, even birds in production! The use of S.Q. in layer rations for 1-3 weeks after housing offers you best protection against outbreaks of coxy.

And, along with a low-cost prophylactic level of S.Q., ask your feed supplier to fortify your laying ration with a high level of PRO-STREP®. Get *dual-protection* against coxy and stress setbacks when moving your birds. Merck Chemical Division, Merck & Co., Inc., Rahway, New Jersey.

S.Q.® *with* THE MERCK MARGIN OF SURETY

The only coccidiostat effective against all important coccidial species.

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Putting Research To Work

BY SPENCER H. MORRISON, PH.D., D. V. M.

Effect of Stilbestrol Upon Protein Requirements of Fattening Steer Calves Fed Varying Levels of Ground Ear Corn Along With Full-Fed Well-Eared Hybrid Corn Silage Vs. Calves Full-Fed Ground Ear Corn and No Silage

● Klosterman & Associates, Ohio Agricultural Experiment Station; Journal of Animal Science, Vol. 18, No. 4, pp. 1243-1249.

The results of two experiments involving a total of 119 Hereford steer calves show that within the range of protein levels tested (8.5 vs. 10%; and 9.25 vs. 10.5 vs. 11.75%) and the levels of ground ear corn fed in conjunction with full-fed corn silage (approximately one third, one half or two thirds full feed of ground ear corn), no significant effect could be shown upon the protein requirement of fattening steer calves for implantation of stilbestrol (36 mg. stilbestrol), when the data for both trials are analyzed. However, there were significant differences due to stilbestrol and protein levels shown in the first experiment which were not confirmed in the second investigation.

It is also quite interesting to note that although none of these experimental cattle were followed by pigs, a very high estimated net-energy value was evident for the particular lots of silage used, since steers fed corn silage required less energy per hundredweight gain based on the estimated net energy values for the feed ingredients fed than did those full-fed ground ear corn and no silage.

In calculating the estimated net energy furnished to the cattle the figure of 15.2 therms per 100 lb. for well eared corn silage for cattle not followed by pigs was used as given by Morrison's (1956). Actually, using the estimated net energy value for other feed ingredients fed and the amounts of feed required per hundredweight of gain a value of 23.9 Therms per 100 lb. silage was calculated for the silage use in these experiments.

If this value were converted to an 85% dry matter basis, it would become 72.4 Therms or approximately equal to the figure for ground ear corn. However, it should be pointed out that this figure is subject to some question and is subject to reexamination by further research because of the rather mediocre performance of the steers, the relatively poor responses secured from stilbestrol implantation, and the question of whether or not different energy levels were actually fed during the trials.

Preliminary results from several colleges, including Ohio, seem to indicate that modern-day hybrid silages grown on well fertilized land may actually contain somewhat more energy than the estimated net-energy figures as listed in Morrison's (1956). Also, the beneficial effects of the lactic acid content and the energy value for it will undoubtedly influence this figure.

Further research is needed on the relative energy value of the various nutrient constituents of corn silage as well as fixing the total net energy value more accurately.

Trace Mineralized, Plain Salt Compared In Wisconsin Test

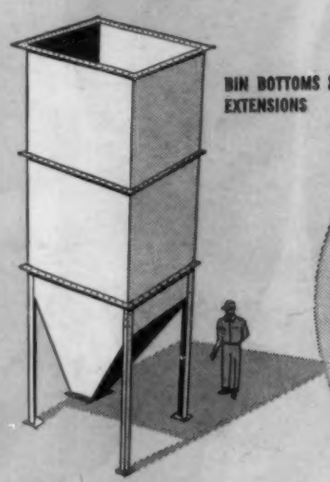
MINERAL POINT, WIS.—Results of a test last summer to compare trace mineralized salt with plain salt when fed on a free-choice basis to cattle fattening on the best of pastures have been reported. During the salt/pasture feeding trial, the cattle ate only grass in addition to the salt.

The results of the experiment were reported in a Morton Salt Co. publication.

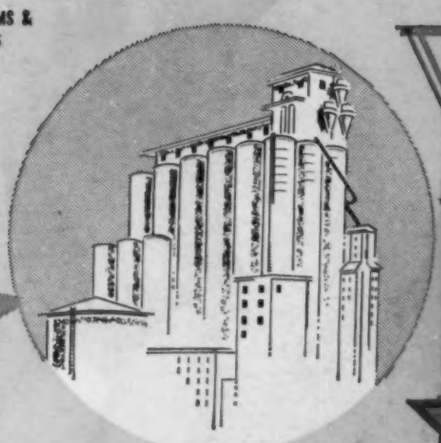
Cattle that were fed loose trace mineralized salt gained on the average more pounds per head per day than those fed the loose plain salt, according to Paul M. Mattson, Morton agricultural products division manager.

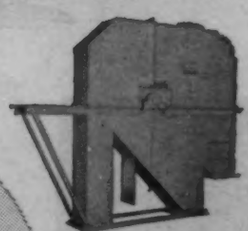
Two groups of cattle were selected

Shelby ENGINEERED EFFICIENT...



BIN BOTTOMS & EXTENSIONS

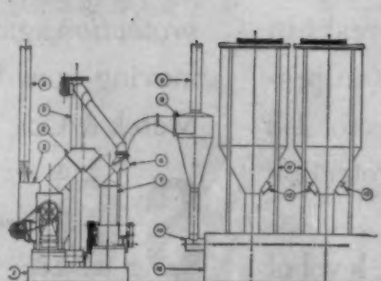




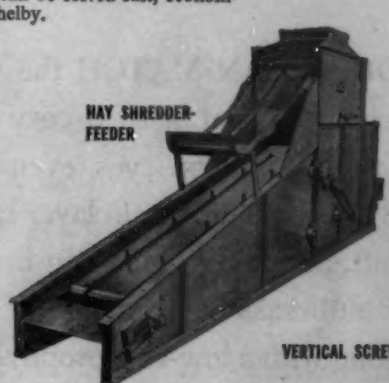
BUCKET ELEVATORS

DUST TIGHT DISTRIBUTOR

Synonymous with good elevator or mill operation is the name "Shelby" . . . because Shelby is engineered by *men who know your needs*. Men who know the requirements of superior, efficient elevator equipment. This is why Shelby's long-standing reputation for highest quality workmanship and materials has endured . . . why you can depend on Shelby equipment for more efficiency, greater stamina, longer life. Small or large, your elevator problems can be solved fast, economically . . . with Shelby.



SIMPAK COMPLETE MILL



HAY SHREDDER-FEEDER

VERTICAL SCREW

FARMERS FRIEND MINERAL BLOCKS
WRITE FOR PRICES
FARMERS FRIEND MINERAL CO.
NAPOLEON, OHIO

SPECIFY Columbia Calcium
COLUMBIA QUARRY CO.
1007 Washington Ave.
ST. LOUIS 1, MO

to exist on natural feed only during the spring and summer pasturing season—on "excellent pasture" high in mineral content, the report said.

Pastures on the ranch selected for the experiment "were highly suitable for the salt/pasture feeding trial due to their excellent conditions in a naturally mineral-rich area with spring-fed streams in each pasture," Mr. Mattson said.

Prior to the experiment, the pasture had been treated with 300 lb. per acre of 10-10-10 fertilizer, followed two years later with 4 tons of lime per acre.

The 298 head of grade black cattle were shipped to Mineral Point, Wis., from San Antonio, Texas. Their average weight at the start of the feeding trial was 442.68 lb. per head. They were gate cut into two lots.

At the end of October, cattle were gathered for the prospective sale. Following are some of the test results:

"Figures compiled at that time proved that the cattle on loose trace mineralized salt gained .354 more pounds per head per day than the cattle on loose plain salt," the report said. "The lot on trace mineralized salt had an average total gain per head of 224.195 lb. at the end of the 116 days on pasture."

Average gain per head per day was 1.578 lb. with the plain salt and 1.932 with the T-M salt. Gross dollar gain daily was 39.3¢ per head on plain salt and 48.1¢ on T-M.

It also was found that more salt per head per day was consumed by the cattle that made the greatest average daily gain per head as compared with the cattle that made the lowest average gain per head—1.211 oz. of trace mineralized salt per head per day as compared with .939 oz. of plain salt per head per day.

The cost of the loose plain salt per head per day was .1¢ as compared with .2¢ for loose T-M salt. In other words, it cost 36⅓¢ more per head per year for the T-M salt, the report said.

Miles Chemical Gears For More Research

ELKHART, IND.—Miles Chemical Co. has announced reorganization of its research structure here as a prelude to "greater all-out research activity." The company is one of four divisions of Miles Laboratories, Inc.

The reorganization dovetails with an over-all corporate research realignment directed by Dr. W. A. Compton, Miles Laboratories vice president of research and medical affairs.

Research Coordinated

Under the over-all corporate program, all research is coordinated and communicated between the central or corporate level and the divisional level. The new research arrangement includes the establishment of a central coordinating research agency within the division and three prime laboratories.

Dr. Willard J. Croxall has been named research coordinator and assistant to the president, according to H. F. Roderick, president of Miles Chemical Co. In his new post, Dr. Croxall will be responsible for coordinating research and development activities of the company in addition to his other duties.

Dr. W. J. Croxall Dr. L. A. Underkofler

The three laboratories assigned to Miles Chemical Co. and their directors are Chemical Research Laboratory, Dr. John Mirza, director; Biosynthesis Research Laboratory, Dr. Leonard B. Schweiger, director, and Enzymology Research Laboratory, Dr. Leland A. Underkofler, director.

Dr. Underkofler and his laboratory will pinpoint research projects in the enzyme field. In addition to greater concentration on enzymes for the food industry, special attention will be given to the farm feed additive field.

Dr. Mirza and his laboratory will deal in the organic chemical field with basic research, product development and product research. Primary targets will be Sumner Products. Under Dr. Mirza's direction will be a laboratory in Elkhart and a laboratory and pilot plant in Zeeland, Mich. Present plans call for consolidation of these functions in Elkhart during 1960.

Dr. Schweiger and his laboratory will concentrate on studies of chemical products developed primarily through fermentation. This includes the field of citric acid and related products.

Purina Makes Several Management Changes

ST. LOUIS—Several management changes in the production and branch plant staffs of Ralston Purina Co. have been announced by David L. Grant, manufacturing vice president.

Paul F. Cornelsen, eastern division production manager, was named central division production manager, succeeding J. F. Jones who resigned Jan. 31.

William H. Derr, manager of the firm's Richmond, Va., plant, is now eastern division production manager.

Donald Danforth, Jr., office manager and buyer at the Ottumwa, Iowa, branch plant, was named manager at Richmond, Va.

Henry T. James, of the production staff, has been named manager of technical soybean production. He will supervise soybean production in the company's soybean plants at Decatur, Ill.; Memphis, Tenn.; Raleigh, N.C.; New Madrid, Mo., and Louisville, Ky.

Mr. Cornelsen, Mr. Derr and Mr. James will headquarter at the firm's general office in St. Louis. All transfers become effective March 1.

GRAIN MACHINERY
ECONOMICAL...ESSENTIAL

OVERTRACK CAR UNLOADER

PIT SCREW

UNDERTRACK CAR UNLOADER

ELECTRIC (or Manual) MAN LIFTS

VERTICAL FEED MIXER

AIR-OPERATED VALVE

Are your grain machinery needs unique? Shelby will custom-engineer any parts or equipment to fit your requirements. If your operation requires custom machining and sheet metal fabrication, Shelby will fabricate your job to your exact specifications. In short . . . Shelby can work for you in many ways, bringing you famous Shelby quality, at a price you can afford. Before you buy . . . call on the extensive services of SHELBY.

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SEND ME COMPLETE INFORMATION AND PRICES ON SHELBY EQUIPMENT AS INDICATED.

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Largest Dealers in Southwest
MID-CONTINENT GRAIN CO.
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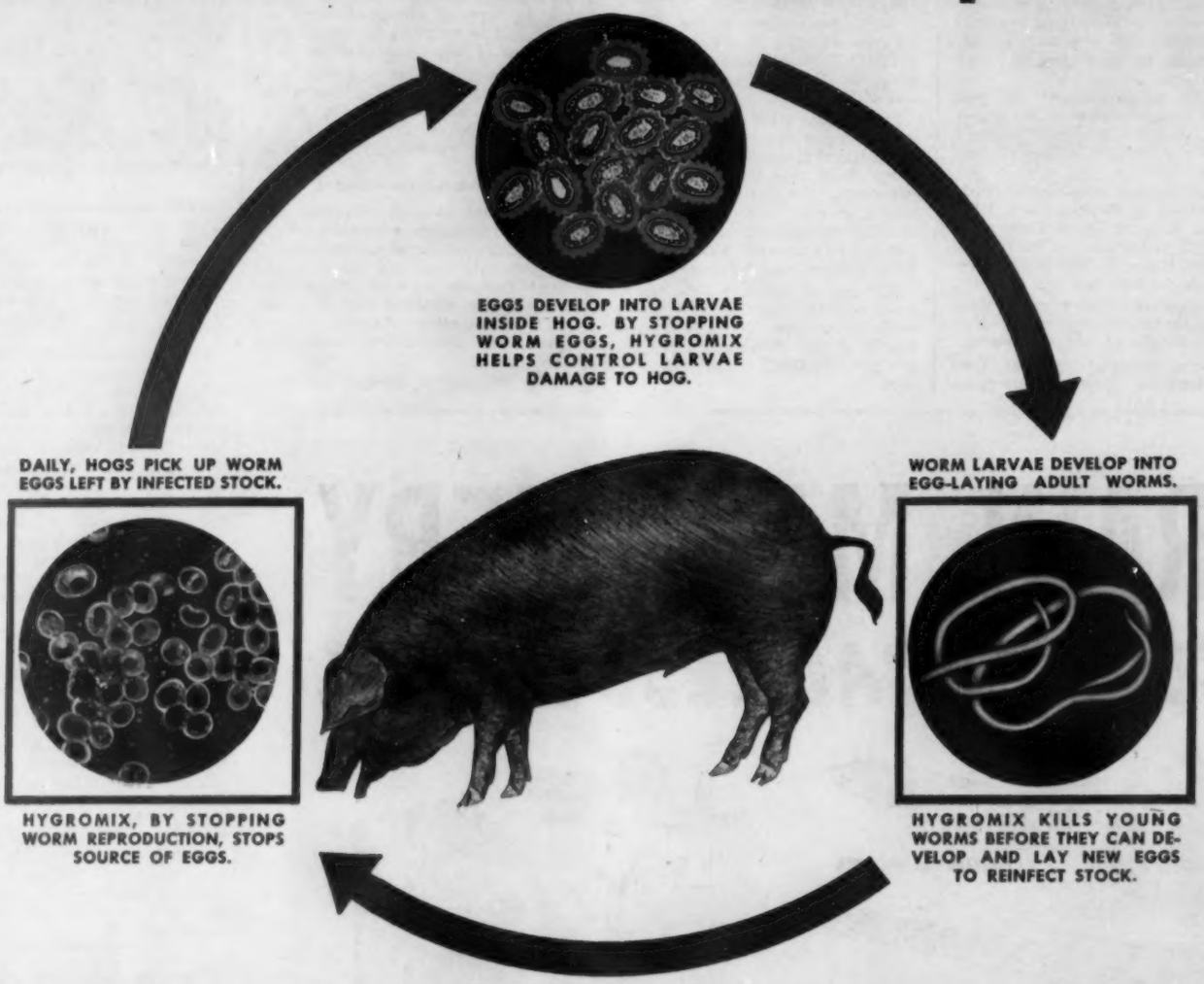
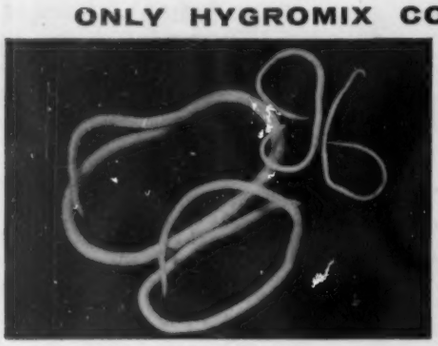
Fleischmann's F·I·D·Y
IRRADIATED DRY YEAST
RICH IN VITAMIN D FOR FOUR FOOTED ANIMALS

Swine worms: A continuous problem


EGGS DEVELOP INTO LARVAE INSIDE HOG. BY STOPPING WORM EGGS, HYGROMIX HELPS CONTROL LARVAE DAMAGE TO HOG.
DAILY, HOGS PICK UP WORM EGGS LEFT BY INFECTED STOCK.
WORM LARVAE DEVELOP INTO EGG-LAYING ADULT WORMS.
HYGROMIX, BY STOPPING WORM REPRODUCTION, STOPS SOURCE OF EGGS.
HYGROMIX KILLS YOUNG WORMS BEFORE THEY CAN DEVELOP AND LAY NEW EGGS TO REINFECT STOCK.

ONLY HYGROMIX CONTROLS THESE THREE WORM LIFE CYCLES:



THE LARGE ROUNDWORM
(Ascaris) *life cycle*

1. Female worm lays up to 1,400,000 eggs a day. Eggs develop embryos in about 14 days.

2. The larvae hatch in the small intestine, penetrate intestinal wall, migrate in the blood stream through liver, heart and lungs. After reaching lungs in about 10 days, larvae are coughed up and swallowed by the pig.

3. Larvae return to small intestine where they develop to egg-laying maturity in 2 to 2½ months.

Damage: Retards growth in young animals and they become unthrifty. As larvae migrate through lungs, pigs have difficulty breathing (cough constantly), often contract pneumonia and die. Lungs hemorrhage, liver damaged. Disturbed digestion. Thumps. Ulcers. Reduces effective nutrient-absorption area of intestine. Adult worms may block bile duct.

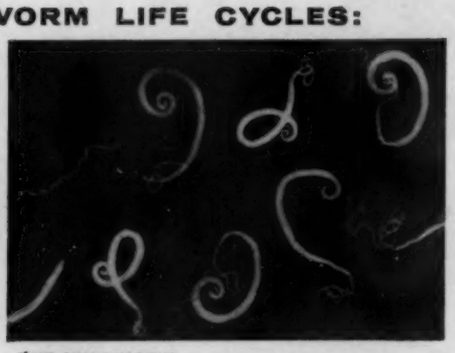
THE NODULAR WORM
(Oesophagostomum) *life cycle*

1. Adult female lays 5 to 10,000 eggs daily, which are expelled in the manure. Eggs often hatch in 24 to 48 hours.

2. Larvae hatch from eggs on the ground and become infective in 3 to 6 days. Pigs are infected when they pick up larvae. Larvae pass through stomach, small intestine into large intestine. Larvae discard protective sheath and penetrate the mucous membranes—which causes intense inflammation within 48 hours. Small nodules develop at points of penetration.

3. Nodules rupture and worms become free to grow and feed in the large intestine, reaching egg-laying maturity about 2 months after the larvae were taken into the body.

Damage: The nodules formed where worms penetrate membranes are ideal locations for infection. Nodules may interfere with food absorption. The adult worms produce intestinal inflammation, weakness, anemia, emaciation, diarrhea, general unthriftiness. Pigs which live are usually stunted.



THE WHIPWORM
(Trichuris) *life cycle*

1. Female lays up to 5,000 eggs per day, which are passed in the manure. Eggs develop to the infective stage in a few weeks to several months, depending upon environment.

2. Swine are infected directly by swallowing eggs. Eggs hatch and larvae penetrate and interlace their bodies in the intestinal walls.

3. Worms settle in the large intestine and grow to maturity in 4 to 5 weeks.

Damage: Infections can cause unthriftiness, weakness, and emaciation; they may even kill a young pig. The attachment of the worms to the wall of the intestine produces an inflammation of the delicate lining, causing bleeding and diarrhea. Damaged intestinal walls are ideal locations for invasion by secondary infections of disease bacteria.

Hygromix: Continuous protection from the problem...

Hygromix in the feed is the only worm control method that... kills three kinds of worms...
prevents worms from laying new eggs...
kills worms day after day...
does not upset feeding or require extra labor

The chart on the left shows the life cycle of swine worms... a continuous process of reinfection that, unseen, eats away at hog-raising profits by slowing gains, lowering feed efficiency and general herd health.

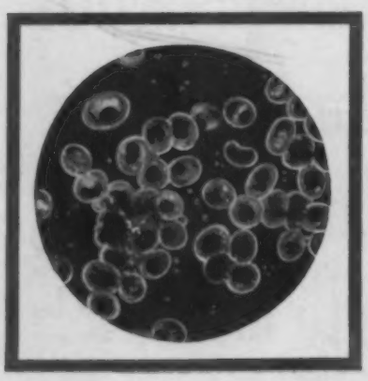
If you were to butcher a "normal, healthy" hog and trace these damaging cycles with a high-powered microscope, you would find all of the stages shown on the left *going on at once*. You would find worm eggs, larvae, baby worms, and adult worms laying new eggs to start the cycle spinning around inside the hog again and again.

Because the cycle... and the loss... continue day after day, there was no way to fight the problem until Hygromix was developed. Purge-type wormers never had any real effect upon the process. By the time the adult worms were flushed out, new eggs had been layed, and most of the damage had already been done.

Hygromix in the feed is the only way to stop the damaging life cycles *before they start*. Hour after hour, Hygromix kills the large roundworm, nodular worm, and whipworm from previous cycles *before they can reproduce*. This same continuous killing action also knocks off baby worms from later cycles *before they can grow to egg-laying maturity*. The fact that Hygromix kills most of the worms when they are small explains why farmers find few adult worms in the droppings of Hygromix-fed hogs.

HERE'S WHY HYGROMIX IS THE ONLY WAY TO BREAK THE LIFE CYCLES OF THE LARGE ROUNDWORM, NODULAR WORM AND WHIPWORM:

Hygromix kills worms as they enter the intestinal tract. Day after day, the hogs protect themselves by killing worms *before* they can do damage... *before* they can lay new eggs.



Hygromix stops swine worm reproduction by killing worms before they can lay new infective eggs. Hygromix is the only worm control method that strangles the source of swine worm damage.

Hygromix kills new worms as they hatch... before they can grow to egg-laying maturity. Hygromix kills adult worms from previous cycles before they can reproduce.

HYGROMIX®
(S. hygroscopicus fermentation products, Lilly*)*

Lilly

Makers of **STILBOSOL®** (diethylstilbestrol premix, Lilly)
Procaine-Penicillin-G • Vitamin B12
Micro-Pen® (special coated procaine penicillin G, Lilly)

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REPLACE DRIED WHEY POUND FOR POUND WITH *Borden's* MG AT $4.86 PER CWT.*

Borden's special blend of whey factors from Milk and Grain flows freely—doesn't cake, dust or take up atmospheric moisture. High in protein, low in lactose (6-7%), for standardized whey factors activity at lowest cost, there is nothing to match it! (And have you tried it as carrier for your pre-mix?)

*f.o.b. Hampshire, Ill.

Laboratories and Test Farms at Elgin, Illinois

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THE *Borden* COMPANY
FEED SUPPLEMENTS DEPARTMENT
350 Madison Avenue • New York 17, New York
MUrray Hill 7-4100

TENNESSEE

(Continued from page 48)

All feed is hauled from a mill at Memphis. He also uses the truck to haul fertilizer from Memphis and insecticides from Canton, Miss. Many of the feed orders are hauled to the farmers. On large orders there is no extra charge, but if the delivery means a long haul and small tonnage, the hauling price is figured in the sale.

"As we got more into the laying hen program, we saw the need for helping producers sell their eggs," said Mr. Moore. "With the big integrated programs gaining throughout the South, the small producer has a difficult time finding markets."

Some of this expense will be alleviated by the fact that the trucks are running to and fro from Memphis almost daily, and often the eggs are hauled on the feed trucks.

Mr. Moore has not overlooked field crops as a source of revenue. He sells a large amount of field seeds and some farm equipment. He has a good sale of farm hardware, cattle sprayers, poultry and livestock supplies, dog food, garden supplies and farm chemicals.

Spray Service

"Another service we are giving," he said, "is in spraying or dusting cotton and corn for farmers in this area. We sell the materials at regular retail price and charge $1 per acre for applying it. This is bringing in much new business, and in addition these customers often start buying feed and other supplies from us."

By stressing the need for fertilizer for increasing corn and cotton yields, the fertilizer sales this season will reach about 1,500 tons.

Credit

One thing a man must watch in operating such a diversified business is credit. Mr. Moore says no business man in this area can operate without extending some credit, however.

"We watch it very closely," he said. "I know all my own customers, and if one seems to be over-extending himself or doing a poor job of managing, I sit down and have a talk with him. Quite often we can work something out helpful to us both. Unless a man has proven managerial ability, we don't work with him on our swine and poultry programs."

Bulk Handling

Future plans for the business include bulk storage and handling. Mr. Moore is gradually helping his larger customers get set up to handle bulk feed.

"It's coming to that everywhere," he said. "The profit margin has narrowed so much that labor costs must be reduced. We're doing that here at the store in every way possible. Most of the time I keep only three employees. By keeping good men and planning our work well ahead of time, we are getting by with from one to two less employees than most stores of this size will require."

Georgia Is Testing Aureomycin on Sows

NEW YORK — The University of Georgia is conducting studies involving the feeding of high levels of Aureomycin chlortetracycline and its effect on the reproductive performance of sows.

Dr. R. F. Sewell, animal husbandry department, is continuing his studies which are again financed this year by a grant from American Cyanamid Co.

Four treatment groups of sows are receiving rations fortified with Aureomycin at high levels during the stress periods of breeding, gestation and lactation. Dr. Sewell hopes to accumulate data that will add further evidence concerning the livability of baby pigs.

Peterson Names Sales Representative

DECATUR, ARK.—James Breeden has been appointed as sales and service representative for the Peterson Breeding Farm in North Carolina, South Carolina and Tennessee, according to an announcement by Kirk K. Hale, executive vice president of the firm.

James Breeden

Mr. Breeden at one time worked for his brother, R. T. Breeden, Sr., owner of a poultry and egg processing plant in Morganton, N.C., and later became manager and part owner of the B & L Feed Supply Co., also of Morganton. More recently, he has been associated with the Mountain Poultry Co., Asheville, N.C., as manager of the sales and trucking divisions.

Planning a new mill or elevator? KELLY DUPLEX can help you.

Maybe you've been thinking about a new mill—a new addition—or a new machine. Then again, maybe you've just been wondering how you can get MORE from your present space.

Whatever it is, we would like to talk to you about it.

We've shown a lot of others how good machinery and good planning can do wonders for their capacity, their efficiency, and their profits — at COMMON SENSE COST. The chances are we can do the same for you.

Don't hesitate to send us the coupon. There will be NO obligation—and NO high pressure salesmanship. We don't do business that way.

Duplex Mill & Mfg. Co., Springfield, Ohio
We would like to talk to you about planning. We're interested in .....
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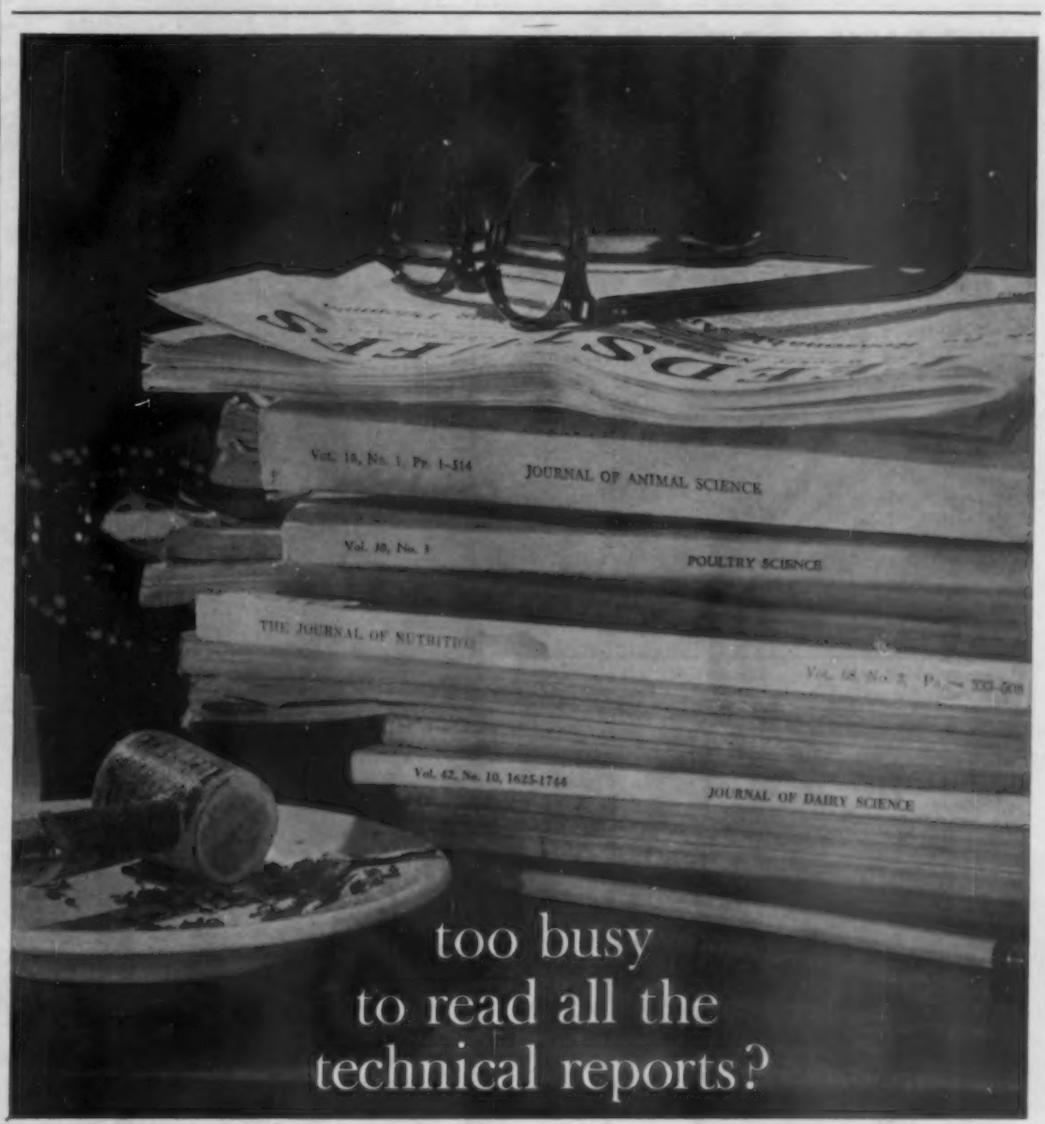
FEEDSTUFFS



Trust Morton to keep up on salt and trace mineral research for you. For Morton's nutritional staff constantly reads and evaluates all the reports on new developments in this increasingly important field of animal nutrition.

Besides studying these reports thoroughly, Morton nutritionists work with Morton chemists to test and blend trace minerals and salt to make sure you get only high-quality ingredients in Morton Mixing Salts. Rigid quality controls and production procedures further assure you mixing salts of unvarying high quality for maximum results in your feeds.

With more than 30 years' experience in selecting and mixing trace minerals and salt for formula feeds, and with the most complete salt research laboratory in the world, Morton offers you a trustworthy source of information on any feed problem relating to salt and trace minerals.

Remember, too, Morton offers you a complete line of tested and proven mixing salts—Trace-Mineralized, Iodized and Special Mixing Salt—each of which is backed by research, experience and service. And you can get Morton Mixing Salts anywhere in the country. For more information, ask your Morton representative or write:

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Ohioan Describes Shared Risk Plan In Egg Contracts

KANSAS CITY—American Hatchery News, published by the American Poultry & Hatchery Federation, recently reported that G. S. Vickers of the Ohio Hatchery Assn. believes "an egg contract wherein producers and promoters share alike on a percentage basis would offer fairer terms."

The publication quotes Mr. Vickers as saying:

"Most of them (egg contracts) guarantee the poultryman so much per dozen or per bird for his labor and use of his equipment. Most of them are between feed dealers or feed companies or hatcherymen and producers, with the feed manufacturers usually financing the dealers but taking no risks other than what goes with financing dealers.

"The risks are about all on the part of the feed dealers or whoever is promoting these deals.

"It appears that a fairer proposition would be one in which the egg income would be shared on a percentage basis with the financing or promoting organization and the producer.

"We would think that it would be desirable that the feed manufacturer be tied in on a percentage basis with the feed dealer so that the price received for the feed would go up and down with the egg prices and efficiency.

How It Might Work

"Let's see how this might work out. (See accompanying table.) We will make the following assumptions based on 1,000 pullets:

"1. The promoter or feed man would supply the feed and pullets and own the pullets. He would also receive the income from the sale of hens at the end of the laying period.

"2. Pullets cost $1.75 each, or $1,750.

"3. Mortality 15% (a little high).

"4. Average size of hens sold 4.4 lb. at 10¢ lb. This would bring in $374, so the loss on pullet depreciation and mortality would be $1,376.

"5. Egg production—216 hen-housed average = 18,000 doz. eggs produced for the year. Many flocks average considerably better than this and if so the income for both feed man and poultryman would be above the figures here in the table.

"6. Feed conversion 4.5 lb. feed per dozen = 81,000 lb. feed.

"7. Promoter or feedman receives 80% of income and producer 20%.

"8. Cost of miscellaneous items such as medication to be paid for on a basis mutually agreed on.

How Shared Risk Plan Might Work Out

Feed man or promoter					Poultryman	
Egg price	Total egg income	Gross egg income	Net egg income	Realized feed price per 100 lb.	Egg income	Amount per dozen
$ .35	$6,300.00	$5,040.00	$3,664.00	$4.52	$1,260.00	$ .070
.34	6,120.00	4,896.00	3,520.00	4.35	1,224.00	.068
.33	5,940.00	4,752.00	3,376.00	4.17	1,188.00	.066
.32	5,760.00	4,608.00	3,232.00	3.99	1,152.00	.064
.31	5,580.00	4,464.00	3,088.00	3.81	1,116.00	.062
.30	5,400.00	4,320.00	2,944.00	3.63	1,080.00	.060
.29	5,220.00	4,176.00	2,800.00	3.44	1,044.00	.058
.28	5,040.00	4,032.00	2,656.00	3.28	1,008.00	.056
.27	4,866.00	3,888.00	2,512.00	3.10	978.00	.054
.26	4,680.00	3,744.00	2,368.00	2.93	936.00	.052
.25	4,500.00	3,600.00	2,224.00	2.75	900.00	.050
.24	4,320.00	3,456.00	2,080.00	2.57	864.00	.048
.23	4,140.00	3,312.00	1,936.00	2.39	828.00	.046
.22	3,960.00	3,168.00	1,792.00	2.21	792.00	.044
.21	3,780.00	3,024.00	1,648.00	2.04	756.00	.042
.20	3,600.00	2,880.00	1,504.00	1.86	720.00	.040

"8. Net income for the feed man is arrived at by subtracting the loss and depreciation on pullets of $1,376 from this gross egg income.

"If results were better in egg production and the mortality lower than the assumptions here both parties would benefit accordingly.

"To pay the producers a percentage rather than a flat amount per dozen would encourage better care and management of both birds and eggs.

"Maybe the 80-20 arrangement might want to be varied slightly but it would appear that the general idea is sound. It leaves no one party holding all the sock."

USING BASIC HOPPER DESIGNS

Lemanco

CAN BUILD EXTRA CAPACITY FROM 20 TO 94 TONS

At 40 Pounds Per Cubic Foot

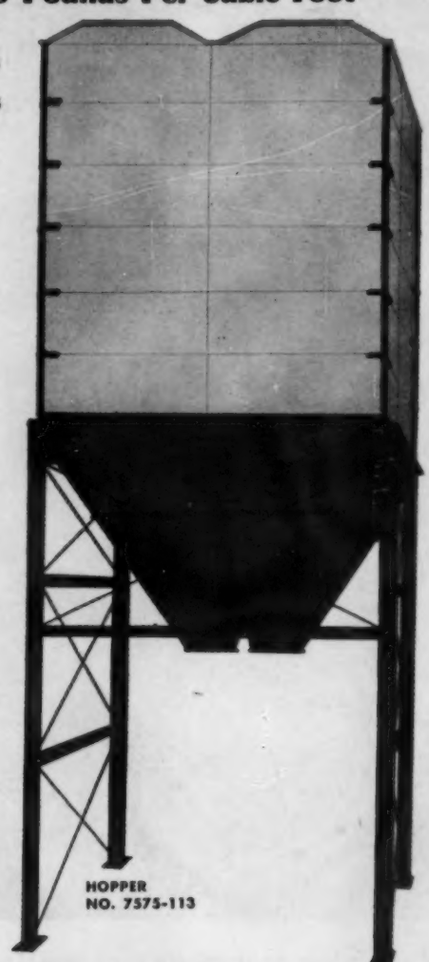
for grains • ingredients
concentrates • finished feeds

The Lemanco system of prefabricating steel BULK STORAGE BINS for inside or outside use is sufficiently flexible that custom planned storage can be offered at mass production prices and delivery. Modular design permits shipment by truck to all points.

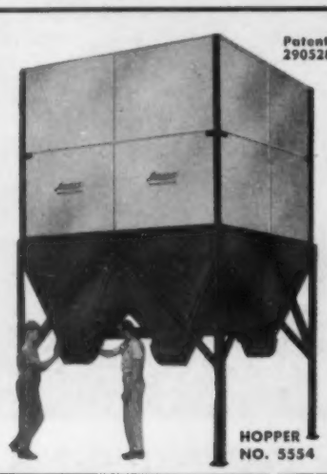
The solidly welded base and the Lemanco patented corner holding the side sheets in tension introduces a new concept in the construction of feed storage facilities. Shown are two examples of bin clusters with capacities of 20 tons and 94 tons. These bin clusters are formed by using four hoppers with common wall partition giving four storage compartments.

Lemanco bins are available for inside or outside storage with models available for side draw or corner draw. This construction permits joining in a straight line as well as shown.

When inquiring about these bins be sure to specify if pneumatic delivery will be used.

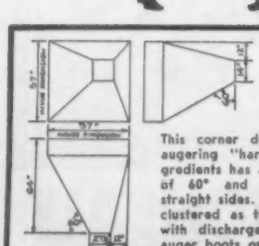


HOPPER NO. 7575-113



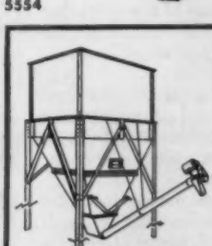
Patent 2905283

HOPPER NO. 5554

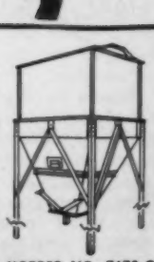


This corner draw hopper for augering "hard-to-handle" ingredients has a minimum pitch of 60° and two practically straight sides. Hoppers can be clustered as the 5554, above, with discharge into individual auger boots or into a common auger boot.

HOPPER NO. 5564



This general purpose side-draw bin for use with auger or weigh buggy has a capacity of 5¾ tons and a maximum capacity of 8¼ tons with another tier of sides. The bin can be used inside as well as outside. Inverted rotary gates, as shown, permit partitioning. Other type gates also available. The minimum 60° pitch of this hopper makes it useful for many applications. It can also be clustered.



HOPPER NO. 7670-A

HOPPER NO. 7670-G

Telephone or write today for prices and further information.

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"If Gooch recommends a feeding program they've proved it works. As a dealer, knowing my customers will get results helps me sell feed."

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Vicksburg, Miss. Dalhart, Tex.
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Worth Crowing About!!

FEEDSTUFFS WANT ADS

The crate that didn't go to market

It *could* have been filled with heavy, profitable birds ...if coxy breakthroughs hadn't taken their toll. The use of NiCarb could have made the big difference. NiCarb virtually *destroys* coccidia in broiler flocks, reduces mortality and subclinical infections as no other coccidiostat can. Be sure *your* broiler starter and grower rations contain the industry's most effective coccidiostat...join the *"Switch to* NiCarb"! Merck Chemical Division, Merck & Co., Inc., Rahway, New Jersey.

Join the switch to

NiCarb®

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Tried, Tested and Proved on over Four Billion Birds!

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Domestic Use, Exports of Feedstuffs For Quarter Top Year Earlier Levels

WASHINGTON — Feedstuffs domestic disappearance for the October-December quarter this season topped the same months a year earlier and was well above the five-year average for these months. Exports for the period more than doubled from the 1958 level.

The U.S. Department of Agriculture notes that consumption of all commercial feedstuffs totaled 5,814,800 tons during the October-December quarter this season, compared with 5,764,100 tons the same months a year earlier and 5,055,000 tons for the five-year average for these months. Exports for the period totaled 408,200, compared with 182,200 for the comparable period in 1958.

The number of grain-consuming animal units to be fed in 1959-60 is estimated by USDA at 171 million as against 170.6 million in 1958-59 and 161.4 million, the average. On the basis of these data, 68 lb. of feed were fed per animal unit in the first quarter of this season, compared with 67.6 lb. in the same period last season and 62.6, the average.

Feedstuffs: Production, Stocks, Foreign Trade and Domestic Disappearance, October-December, 1959 and 1958

Feedstuffs	Stocks Oct. 1*	Production	Imports	Exports	Domestic disappearance	Stocks Dec. 31*
	October-December, 1959 (1,000 tons)					
Oilseed meals—						
Soybean	58.5	2,449.5	0	256.0	2,185.9	66.1
Cottonseed	97.0	1,014.8	11.0	91.9	920.5	110.4
Linseed	33.3	119.5	1.1	41.7	71.1	41.1
Copra	..	33.2	1.2	**	34.4	..
Peanut	1.8	15.5	0	**	15.7	1.6
Total	190.6	3,632.5	13.3	389.6	3,227.6	219.2
Grain by-products—						
Wheat millfeeds	**	†1,265.3	18.1	18.6	1,264.8	**
Rice millfeeds	**	70.3	**	**	70.3	**
Gluten feed and meal	**	298.5	**	**	298.5	**
Distillers dried grains	8.9	89.6	**	**	93.0	5.5
Brewers dried grains	8.2	49.8	**	**	51.0	7.0
Total	17.1	1,773.5	18.1	18.6	1,777.6	12.5
Other feeds—						
Meat meal and tankage	**	423.9	1.7	**	425.6	**
Fish meal	**	†54.8	14.3	**	69.1	**
Alfalfa meal	473.1	168.3	**	**	314.9	326.5
Total feeds	680.8	6,053.0	47.4	408.2	5,814.8	558.2
	October-December, 1958 (1,000 tons)					
Oilseed meals—						
Soybean	48.1	2,374.3	0	146.3	2,223.3	52.8
Cottonseed	71.2	869.3	37.5	4.2	895.3	78.5
Linseed	26.3	126.9	0.7	9.4	134.8	9.7
Copra	0.6	26.8	12.3	**	39.7	..
Peanut	1.5	18.4	0	**	17.1	2.8
Total	147.7	3,415.7	50.5	159.9	3,310.2	143.8
Grain by-products—						
Wheat millfeeds	**	1,200.4	22.3	22.3	1,200.4	**
Rice millfeeds	**	57.6	**	**	57.6	**
Gluten feed and meal	**	273.2	**	**	273.2	**
Distillers dried grains	2.2	98.5	**	**	98.3	2.4
Brewers dried grains	4.9	49.5	**	**	51.6	2.8
Total	7.1	1,679.2	22.3	22.3	1,681.1	5.2
Other feeds—						
Meat meal and tankage	**	367.0	4.8	**	371.0	**
Fish meal	**	50.8	23.8	**	74.6	**
Alfalfa meal	451.7	166.6	**	**	327.2	291.1
Total feeds	606.5	5,679.3	100.6	182.2	5,764.1	440.1

*Stocks at processing plants only. †Partly estimated. **Not available.

Oilseed Meal Consumption

Oilseed meal consumption of 3.2 million tons October-December was 2% below last season, while production of 3.6 million tons was 6% above. Accounting in part for the smaller domestic disappearance were the heavy exports which totaled 390,000 tons during the quarter, as against 160,000 a year earlier. Of this export total, soybean meal totaled 256,000 tons, cottonseed meal, 92,000 tons, and linseed meal 42,000 tons.

Stocks of oilseed meals at crushing plants totaled 219,000 tons at the end of December this season as against 144,000 tons a year earlier. Soybean meal consumption totaled 2.2 million tons the first quarter, a drop of 37,000 tons from a year earlier. However, consumption of cottonseed meal gained 25,000 tons, totaling 920,500 tons. Linseed meal consumption of 71,000 tons was down by 64,000 tons. Consumption of peanut and copra meal was down slightly.

USDA reports that consumption of grain byproducts feeds increased with feeding of wheat millfeeds up by 5%. Domestic use of gluten feed and meal increased 9%, while consumption of other millfeeds showed a smaller increase. Consumption of alfalfa meal was down slightly with stocks at the end of December 12% above a year earlier.

Production of meat meal and tankage was up 57,000 tons, totaling 424,000 tons as against 367,000 for the same period a year earlier. Production of fish meal increased slightly, but, with smaller imports, domestic consumption totaled 69,100 tons October-December this season compared with 74,600 last season.

December Figures

Total domestic disappearance of feedstuffs for December of 1,857,300 tons was down from the year earlier total of 1,952,500, but a big jump in exports from 67,100 in December, 1958, to 182,800 in December, 1959, made total disappearance larger in December, 1959.

USDA points out that prices during January have averaged 12% or $7.50 a ton below a year earlier, reflecting, in part, the larger feed supplies. Although prices have strengthened since the beginning of the season, the advance was less than a year earlier. Feedstuffs prices advanced an average of $2 per ton from the first part of October through January, as against a gain of $8.50 for the same period a year earlier. The biggest drop took place in animal feeds. Meat meal averaged $33 lower, while fish meal dropped $53 below a year ago. Soybean meal averaged $5 below a year ago, cottonseed $8.50 and linseed meal $2 per ton lower. Wheat millfeed prices at the principal markets in January averaged $6.50 per ton below a year earlier.

Selection of Forage By Sheep Studied

BERKELEY, CAL.—University of California researchers at the Hopland Field Station are conducting the first full-scale study aimed at determining what constituents of forage are particularly desired by animals and how they make their selections.

The answer to this question may result in range improvement practices to produce the most acceptable, as well as the most nutritious, types of forage.

Donald T. Torell, animal husbandman, and William M. Longhurst, zoologist, have found that sheep are so selective in their choice of foods that, given the chance, they not only pick out certain plants but also take particular parts of plants.

Other institutions are studying this problem, also, but they are primarily concerned with improving fattening rations for livestock.

BLACKSTRAP MOLASSES
ANIMAL FEED SUGAR
Olavarria & Co., Inc.
79 Pine Street
New York 5, New York
MOLASSES TERMINALS
New Orleans, La.
Paulsboro, N.J.
TELEPHONE:
WHitehall 3-6930
TWX: NY 1-4409

CORN DISTILLERS SOLUBLES WITH GRAINS
PRODULAC
for well-balanced nutritive feeds mix
NADRISOL
CORN DISTILLERS DRIED SOLUBLES

BOTH GRAIN FERMENTATION PRODUCTS

For customer satisfaction and increased profit, try mixing either of these economy fortifiers. Rich in proteins, vegetable fats and highly nutritious, Nadrisol and Produlac also contain Vitamin B-G complex plus unidentified growth factors so necessary for healthy birds, a greater meat and egg yield. Mixing either in your formula feeds is an excellent way to promote good pigmentation, better feed conversion and a growth rate fast enough to please your customers and bring them back for more.

Sold only to manufacturers of formula feeds.

NATIONAL DISTILLERS PRODUCTS COMPANY
GRAIN PRODUCTS SALES
99 Park Avenue, New York 16, N. Y.
Member of Distillers Feed Research Council

OPEN YOUR EYES

To the Added Sales Force... of the VIT-A-WAY Program!

When you Fortify your Feeds with VIT-A-WAY this complete program joins your sales force

1 PATENTED VIT-A-WAY FORTIFIER . . .
A simple one-package means of fortifying all your feeds. VIT-A-WAY eliminates any guesswork in feeds and furnishes adequate mineral-vitamin-fortification that is essential for nutritionally "balanced" formula feeds. By using VIT-A-WAY FORTIFIER you also eliminate investing in a big inventory of the various elements which are contained in patented VIT-A-WAY. There's no better way to build feeds than with VIT-A-WAY.

2 FEED FORMULATION . . .
Our complete feed formulating department is at your service to help you prepare any type formula for any type livestock feed. Your formulas will be made using local and easily available ingredients . . . and, they will be uniform and result-producing at the lowest possible cost to the feeder. You will get "your own" formulas prepared by some of the nation's finest nutritionists, who are on the VIT-A-WAY staff.

3 NUTRITIONAL COUNCIL . . .
Our department of research and control is always ready to answer questions and furnish research data on "tomorrow's problems today" . . . to help you meet and solve the problems in your own area. This puts you in a better position to serve your customers with the newest developments in scientific and efficient feeding practices.

4 ADVERTISING AND MERCHANDISING . . .
VIT-A-WAY provides you with a modern, up to date advertising and merchandising department to help you "create" new business with sales literature, feeding programs, advertising mats, point of sale pieces, direct mail pieces and other sales aids. It takes more than just good feed to build business . . . It requires a sound merchandising program to "step out" and outsell competition.

5 DIRECT MAIL PROGRAM . . .
Free mailings that go right into the home of your customers and prospects with your name imprinted on them. These mailings invite them to visit you . . . and further explain to them how your VIT-A-WAY fortified feeds will help them get top feeding results and lower feeding costs.

6 SALES TRAINING . . .
Help for you and your salesmen to be sure they are familiar with your products, and how to apply their use to the problems of the feeder. Selling tools, literature, and mailings go to your salesmen to keep them abreast of new developments and findings so they can do a better selling job for you.

7 FEEDER MEETINGS . . .
VIT-A-WAY personnel will help the feed manufacturer plan and execute group Feeder Meetings to explain and point out the value of VIT-A-WAY Fortified Feeds and Feeding programs. These meetings do a real selling job for the feed manufacturer . . . as well as perform a public service to customers and potential customers.

The VIT-A-WAY Program has been built by feed manufacturers . . . both large and small . . . all over the country to meet their needs and provide the services they need most to operate a more successful feed business.

No other product can help you make a better feed . . . and no other program can add a more qualified professional team as the VIT-A-WAY staff to YOUR SALES FORCE!

Write or call today for details on a VIT-A-WAY Program "Tailor-Made" to fit your requirements. After our representative shows you . . . you'll be convinced.

exclusively patented* processed

VIT-A-WAY
MINERAL-VITAMIN FORTIFIER

*U.S. PAT. NO. 2,611,702

Makes A Good Feed Better

WRITE FOR A COPY OF THIS VIT-A-WAY PROGRAM KIT. IT FITS IN YOUR FILE FOR REFERENCE.

VIT-A-WAY, INC.
P. O. Box 4311
Fort Worth 6, Texas Phone: MA 6-2871

Ultra-Life Follow-Through

Better nutrition is our business — not just the scientific formulation of vitamin-trace mineral fortifications. That's why at Ultra-Life, laboratory scientists, farm servicemen and marketing men *Follow Through* on shipments of Ultra-Life products — to help produce better sales for the feed manufacturer and better nutrition for the feeder.

Ultra-Life LABORATORIES, INC.
Main Office and Plant — East St. Louis, Illinois
One of the country's oldest and largest manufacturers of vitamin and base mineral products.

Profit Served Plan

Pilch Breeders EARN 84.44¢ per pullet MORE than WHITE ROCK AVERAGE

In 1959 Maine PRODUCTION and BROILER TEST

11½ month Lay Full Fed Program

13th MAINE PRODUCTION AND BROILER TEST
October 1958 — September 15, 1959

WHITE ROCKS	Total Eggs	Average % of production	Average income over feed costs	Above average income per 100 birds
Pilch Entry	8416	48.1	$203.45	$406.90
Average White Rock	7637	43.6	$161.23	$322.46
Pilch Better than average results	779	4.5	$ 42.22	$ 84.44

Year after year, in test after test, Pilch pullets continually lead the White Rock field with high better than average income results. If you want a pullet that gives the top performance and high income shown above, be sure to specify Pilch Meat Type Breeder Pullets in your next order.

Based on 50 hens housed at beginning of test. Test arranged according to income over feed costs. All comparable Pilch entries in Official Tests 1958 versus 1959 to end of test. Largely random sample growing and laying trials in U.S.

Pilch's WHITE ROCKS for MEAT and EGGS

Pilch's POULTRY BREEDING FARMS, INC.
General Office: Hazardville, Conn.
Southern Division: Talladega, Ala.

Midwest Advertising Council Workshop Offers Ad Tips

By MARTIN E. NEWELL
Feedstuffs Staff

KANSAS CITY—Many aspects of feed advertising were discussed at a workshop luncheon of the Midwest Feed Advertising Council in Kansas City during the convention of the Midwest Feed Manufacturers Assn. About 50 advertising and sales managers, advertising men from agencies and others interested in feed advertising problems attended.

Vernard E. Lundin, director of public relations, Hubbard Milling Co., Mankato, Minn., presided as chairman of the committee that planned the program. Other planners were Ray Gould, Dannen Mills, St. Joseph, Mo.; Harvey Bergren, Pay Way Feed Mills, Kansas City, and Jack Dow, Dow Advertising Agency, Omaha. At the conclusion of the meeting, a nominating committee was chosen to select the leadership of the council for the coming year, and those who attended voted unanimously that the session had been helpful and that council activities should be continued.

The council originated at a meeting in Iowa last year which was brought about by criticism of the claims made in the text of some feed advertising being used in the state. The original activity of the council in discussing this problem since has broadened to cover other aspects of feed advertising.

Advertising Faults

Discussing the subject of "How to Create More Provocative Feed Advertising," Mr. Dow said that "product worship" is the cause of most poor feed advertising. Advertisers should direct their sales message toward people who are the buyers rather than devoting advertising space and time to "genuflecting toward the product."

Advertising today is lacking in ideas and imagination, Mr. Dow said, and he attributed this fact primarily to the business climate and the growing organization practice of handling everything through committees which inevitably leads to the principle of "let's play it safe," he said.

People do business with those whom they like, Mr. Dow emphasized, and thus every advertisement should have a spirit of friendliness about it. It should not be loud, tricky or display similar repulsive characteristics.

Mr. Dow gave several examples of successful advertising based on the use of timely ideas. One of these illustrations concerned an advertising campaign to promote the sale of a supplement, fed to hogs with corn in a year of cheap corn prices. The campaign started off with a carefully calculated advertisement showing that corn was worth $2.37 bu. (far above the market price) if fed to hogs with the supplement. The advertisement proved to be a flop, and actually was resented by many farmers who felt that the advertiser was admonishing them to stop complaining about corn prices because corn was worth a lot more than they thought it was.

In rewriting the advertising for a new campaign, Mr. Dow adopted the headline "A Corn Crop is a Year Out of Your Life. Feed it Wisely." This approach proved to be one of the most successful advertising programs the feed manufacturer had ever had.

A seasonal tie-in often provides effective selling ideas, he pointed out, illustrating with the story of a small town merchant who had an accumulation of unsold goods of doubtful value dating back many years. He ran a special sale on Washington's birthday and advertised it with the headline "I cannot tell a lie. Every item in this advertisement is junk." It proved to be highly effective. People came to laugh, but they bought a lot of the outdated merchandise, too.

Mr. Dow said that he felt that the bad advertising in the feed industry, the unwarranted claims and the unethical promises arose primarily, not from malice, but simply from a lack of imagination and ideas, with advertisers taking the easy way of "worshipping the product" and forgetting about the people to whom they are selling.

Develop Program

Mr. Gould said that one of the most effective ways to get dealers to use more cooperative advertising was to develop a package for a complete program and then explain it thoroughly to the company sales force and to the company's dealers at sales meetings. He emphasized

"The Roskamp Oats Crimper has been doing a wonderful job for us. I have always been a believer in coarse open feeds. I would have had an oats crimper sooner, but felt I could not afford one. Now I feel anyone with a fair size dairy business cannot afford to be without an oats crimper and I sincerely believe the Roskamp is the Cadillac of them all."—Paul Metzler, Metzler's Feed Mill, Bowmansdale, Pa.

The solid white iron rolls in all Roskamp Grain Roller Mills are guaranteed for ten years.

WRITE TODAY FOR COMPLETE INFORMATION

ROSKAMP
HULLER MFG. CO.
CEDAR FALLS, IOWA
"Pioneers Progressing with the Years"

that it is particularly important that the company's salesmen understand the program so that they can answer questions and help the dealer when called on. Another effective way to promote cooperative advertising is a monthly news sheet to dealers, he said.

In the discussion which followed, other sales managers also emphasized the fact that the best success in co-operative advertising can be obtained when it is on a package basis which covers six months or so at a time. Another helpful device is the bonus deal, whereby the company agrees to provide nine co-operative advertisements for the cost of ten, or some similar discount.

Another effective help is to use the state press services. These country press service organizations will distribute the advertising mats to various local newspapers who in turn will call on the dealer and urge him to use the cooperative advertising program. It was suggested that in supplying mats to press services they should not be too big as it discourages the dealers from buying when the space required is too large for their pocketbooks. "Keep them small," was the advice given.

Effective Campaign

Ingenuity in using direct mail was the topic discussed by Mr. Bergren, who explained the details of a successful egg promotion undertaken by Pay Way which had resulted in a 300% increase in egg feed tonnage. Called the "Golden Yolk" feed, the product was given the assistance of a premium—a one hand egg beater, not a new gadget but one which had dropped out of sight in recent years.

To develop a special mailing list for this promotion, the Pay Way dealers were given the opportunity to provide the list of their best egg feed customers and were charged 25¢ per name submitted. Each customer on the list received the direct mail advertising and was entitled to a free egg beater to be picked up at the dealer's place of business. This gave the dealer an opportunity to talk about the merits of the new feed. Even if the customer did not come to the dealer's store, it gave the dealer an opportunity to make a call on such a delinquent customer and give him his gift.

The mailing piece consisted of the paper bag, full size, used for the new product. It was folded over and printed with the necessary advertising message. Even the name of the dealer was printed on the bag. The unusual character of the mailing insured virtually 100% attention and proved highly successful.

Mr. Bergren emphasized that direct mail is not cheap advertising. It is the most expensive of all types. Therefore, to be successful it must be planned with great care and with imagination.

Preceding the session the advertising council members attended the weekly luncheon of the Advertising and Sales Executives Club of Kansas City and heard Davis Ellis, vice president of the All State Insurance Co., discuss the need for training young people to understand business activity, corporation operation and the free enterprise system.

Following the talks, there was a round table discussion with many questions asked and answered on feed advertising details.

Sterling Drug Head New Board Chairman

NEW YORK—J. Mark Hiebert, president, Sterling Drug, Inc., has been elected to the additional office of chairman of the board. His predecessor in this post was the late James Hill, Jr., who died suddenly in Paris Jan. 27.

The board of directors also elected George S. Hills, a director, as vice chairman and general counsel.

President of Sterling since 1955, Mr. Hiebert has been a director of the company since 1949, and was its executive vice president, 1950-55. He joined the Sterling organization in 1934, was a prime mover in the development and marketing of new products and headed several units of the company before moving into the executive management of the business.

YOUR PLUS FOR PROFIT

Dehydrated Alfalfa will boost the value of your feeds with high quality protein, all important vitamins and minerals . . . PLUS . . . Xanthopylls for better pigmentation and Unidentified factor(s) for growth promotion.

MEMBERS THROUGHOUT THE NATION TO SERVE YOU

AMERICAN DEHYDRATORS ASSOCIATION

430 BOARD OF TRADE, KANSAS CITY, MO.

ADA american dehydrators association

PASTURE IN THE BAG

FEEDSTUFFS—*LEADER in its field*

More advertisers use FEEDSTUFFS than any other publication in the feed industry

Boost Livestock Income!

Minnesota Linseed Meal earns more for livestock raisers when they market

OUR 90th YEAR

Palatable, slightly laxative Minnesota Linseed Meal conditions—puts a bloom on stock—and helps livestock raisers get top prices when they sell.

The high protein value of Minnesota Linseed Meal is an important feed supplement. It means healthier stock and extra pounds—more income at the market. Sell it straight—by the bag—or mix it with your own brand of ration. *Available in meal, pellet or grit form.*

Suggest Minnesota brand to your feed customers and you'll do them more than a favor. You can *help boost their income.* And, their gain is your gain!

Minnesota LINSEED OIL CO.

Minneapolis 21, Minnesota

SUnset 8-9011

There's a QUALITY DIFFERENCE!

Fleischmann's F·I·D·Y IRRADIATED DRY YEAST RICH IN VITAMIN D FOR FOUR-FOOTED ANIMALS

Use Feedstuffs WANT ADS for RESULTS

ACE BRAND ROLLED OATS
(STEAMED ROLLED)

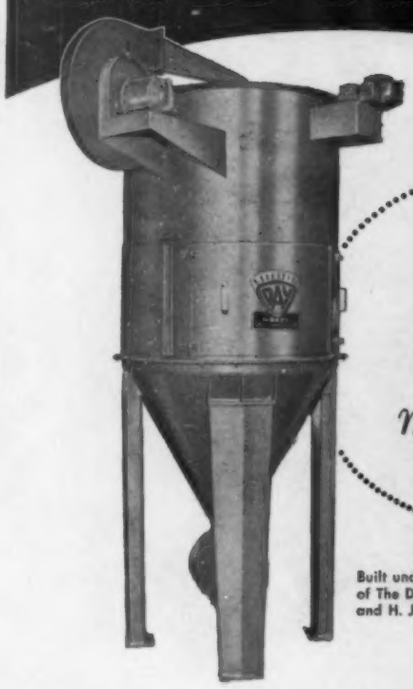
Feed manufacturers have proven that Ace Brand's superior quality at a competitive price is the answer to today's demand for lower feed cost.

Phone: FRanklin 4-2142 Teletype: MP477

FRUEN Fruen's MILLING CO.
MINNEAPOLIS, MINN.

New DAY "RJ" Dust Filter

CONTROLS DUST SAVES DOLLARS



only 3 moving parts

Built under patents of The DAY Company and H. J. Hersey, Jr.

Because of its new, simplified design the DAY "RJ" dust filter will save you many dollars on initial investment, installation, operation and maintenance. Some of the important new construction features of this dust filter are: a new, quick-opening reverse-air, counter-flow valve for maintaining filter media porosity; a new, reverse-air pressure blower arrangement, and new, air tight, yet quickly opened inspection doors.

This patented DAY dust filter has only 3 moving parts but controls dust effectively, efficiently (99.99+%) and economically. It represents the latest refinement in a long-tested, plant-proven dust filter. Using felted filter sleeves to capture dust, the "RJ" is now available in 5 sizes for handling from 300 to 6400 CFM of air (for larger capacities, multiple groupings are furnished).

For more detailed information write toDAY for free Bulletin G-30. It's filled with facts, specifications and dimensions.

The DAY Company

SOLD in UNITED STATES by The DAY SALES Company 819 Third Avenue N.E. Minneapolis 13, Minnesota FEderal 6-9671

DAY SINCE 1891

MADE and SOLD in CANADA by The DAY Company of Canada Limited Rexdale (Toronto), Ontario, Canada Fort William, Ontario, Canada Rexdale, Cherry 1-8589

Representatives in Principal Cities

EXPERIENCE ENGINEERED . . . LABORATORY TESTED . . . PLANT PROVEN
Dust Control • Pneumatic Conveying • Bulk Storage
EQUIPMENT . . . SYSTEMS . . . INSTALLATION

SELLIN' SAM By Jim Zilverberg

"Well, well, Mr. Naylor! You're sure looking great this morning!"

Steers Like Alfalfa Pellets, Tests Show

BIRMINGHAM, ALA.—Beef steers selected grain rations supplemented with pellets over rations containing alfalfa meal or finely ground alfalfa pellets in tests at the University of Arkansas. They ate more unsupplemented grain and grain plus ground pellets than grain plus alfalfa meal or grain plus ground pellets, and they spent the most time eating the unsupplemented ration, followed closely by the ration with pellets.

These findings are results of beef cattle preference studies of dehydrated alfalfa supplementation, reported by Dr. M. L. Ray, associate animal husbandman with the University of Arkansas' Agricultural Experiment Station, in Birmingham, Ala., during the annual meeting of the Association of Southern Agricultural Workers.

He explained that eight beef animals were observed during 13 weeks when fed three forms of dehydrated alfalfa as a supplement to a fattening ration. The alfalfa was fed as meal, three-sixteenth inch pellets and finely ground pellets. The grain ration was a 4:3:2:1 mixture of corn, oats, wheat bran and cottonseed meal. This was full-fed twice daily with two pounds of crimped barley added each feeding.

Preference for four preparations were observed when each animal was offered simultaneously in a divided feed bunk: Grain, grain plus meal, grain plus pellets and grain plus ground pellets. Preferences were measured by first choice selection, minutes spent eating each preparation and total pounds of each preparation eaten.

FEED STORE MOVED

MILLERSBURG, IOWA—Mr. and Mrs. Harold Goodman, managers of the Millersburg (Iowa) Feed Store, traded locations with the local tire firm of Ralph and Larry Burck, when the latter bought the feed store building. The feed store is now located on Main St.

SOMETHING TO REMEMBER US BY!

We've got a colorful sample bag of Graniteeth all set to send you—free, of course, with no obligation. Once you have it, you can see for yourself what we're shouting about. Feel the sharp edges of this hard, insoluble granite grit. Notice how clean it is. See the sparkle of the mica that gives it its famous "pep appeal." Check the all-around value of a product that will *save* you money and *make* you money. For Graniteeth means more meat on the bone. It means more food from less feed. It cuts down on barebacks. It keeps the gizzard healthy and clean. It builds up... but we'll leave it to you. Call or write us and we'll see that you get your bag... pronto!

CONSOLIDATED QUARRIES DIVISION
The Georgia Marble Company

422 Fulton Federal Building, Atlanta 3, Georgia • JAckson 3-5591

HOW CCC HELPS CUSTOMERS PROTECT MARKETS TODAY AND IN THE FUTURE

A good product PLUS A SERVICE helps CCC customers protect markets today and in the future.

- **Extensive research and technical facilities helps CCC customers stay out front.**
- **Three convenient distribution points helps CCC customers maintain stocks.**
- **CCC's control laboratory helps customers maintain a consistently high quality product.**

CCC LEADS AGAIN

CCC now has its own plane enabling CCC research personnel and laboratory technicians to give on-the-spot advice to customers on problems that arise in the use of CCC products.

THE THREE PURITANS symbolize the three CCC quarries—in Quincy, Illinois; Carthage, Missouri and Weeping Water, Nebraska—so called because of the high purity of the deposits.

CCC Trace Mineral Premixes

CCC Calcium Carbonate

CCC Products . . .

- **Calcium Carbonate—any desired grind**
- **Electro (free flowing) Calcium Carbonate**
- **Iodized Calcium Carbonate—any desired iodine level**
- **Manganosed Calcium Carbonate—any desired manganese level**
- **Iodized-Manganosed Calcium Carbonate—any desired iodine and manganese levels**
- **Trace Mineral Pre-Mixes**
- **Shellmaker (Calcium grit)**

Write, Wire or Phone

Calcium Carbonate Company

Pioneer Producers of Trace Element Products

520 South 4th Street · Quincy, Illinois

325 Woodmen of the World Building, Omaha 2, Nebraska, Box 409, Carthage, Missouri

TRACE MINERAL PRE-MIX DISTRIBUTORS: R. A. Erb & Co., P. O. Box 663, Arcadia, California • R. D. Irwin Co., 738 Third National Bank Bldg., Nashville 3, Tennessee • R. A. Lucius Co., P. O. Box 7244, Sylvania Sta., Fort Worth 11, Texas • Peterson Laboratories, 2935 South State St., Salt Lake City 7, Utah • Comercial Roka, S. A., Apartado Postal 2460, Mexico 1, D. F., Mexico • Fosfamitre, S. A., Edificio Payret, San Jose y Zulueta, Havana, Cuba.

always FIRST with the BEST!

For prompt deliveries of high quality blackstrap molasses, your most dependable source is NATIONAL! Write, phone or wire today for quotations!

NATIONAL MOLASSES COMPANY
Executive Offices: ORELAND, PA.
Phone: Livingston 8-5900 (Philadelphia)

AMERICAN ELEVATOR & GRAIN DIVISION
Russell-Miller Milling Co.
P.O. Box 157, Buffalo, N. Y., Phone MAdison 6007, Teletype BU 550
SHIPPERS CARLOAD LOTS—CHOICE WHEAT, CORN, OATS, BARLEY
TERMINAL ELEVATORS AT
BUFFALO — DULUTH — MINNEAPOLIS
New York Minnesota Minnesota

ELEVATE YOUR PROFITS WITH Universal bucket elevators

"Lucky Elevator" shows the extra profits you can be yours when you use a Universal Bucket Elevator with its trouble-free operation. Through over 50 years of research and modern production methods, Universal offers a more compact, cleaner operating, smoother running elevator at lower initial cost, low operating cost, and minimum maintenance and repair.
Universal Elevators are available for capacities of 50 to 3,000 bushels per hour, and can be obtained for any exact height.
SEND FOR FREE LITERATURE AND PRICES.

Universal HOIST CO.
BOX 101 CEDAR FALLS, IOWA

AVAILABLE EXTRA EQUIPMENT

GUARANTEE
Universal guarantees complete satisfaction within 60 days or full purchase price will be refunded. Materials and workmanship guaranteed for one year.

2-WAY VALVE 3-WAY VALVE 6-WAY VALVE

DEDICATION—Shown (left to right), at the dedication of the new Stockton (California) Grain Exchange building and Commercial Exchange Club are: Jack Harley, Stockton Elevators, treasurer of the club; Arthur Heiser, Flotill Products Co., president of the club, and Sen. Alan Short, Stockton.

Stockton Exchange Building, Club Dedicated

STOCKTON, CAL.—Dedication of the new Grain Exchange building and Commercial Exchange Club at the Port of Stockton marks the graduation of this inland ocean port to the position of the largest grain marketing center in the Golden State, and the second largest (after Portland, Ore.) on the Pacific coast.

Ed Kauppila

Dedication ceremonies were held in the newly renovated building. Representatives of the grain trade in the state gathered with other local industry and financial leaders for dinner in the new club, which occupies about two thirds of the building. The year-and-a-half old Stockton Grain Exchange is at the other end of the $70,000 building. Ed Kauppila is manager of the exchange.

The club was formed last May shortly after the new grain exchange proved to be a successful operation. Arthur Heiser, Flotill Products Co., Stockton, is president; Jack Harley, general manager, Stockton Elevators, is treasurer, and Ivan Brown, E. D. Wilkinson Grain Co., is a member of the board of directors. Also on the board are H. P. McCandless, Port of Stockton; I. N. Robinson, Jr., Robinson Farms, and Leo Goodwin, Stockton Bulk Terminal.

Accepting AOAC Award Nominations

WASHINGTON—Nominations are now being accepted for the fourth Association of Official Agricultural Chemists Harvey W. Wiley Award for Achievement in Analytical Methods, according to J. B. Smith, president, AOAC.

The $500 award will be given to the scientist or group of scientists who have made outstanding contributions to the development of analytical methods for foods, drugs, cosmetics, feeds, fertilizers and pesticides or for use in general analytical chemistry. These are the fields of interest to the AOAC which are encompassed in its Official Methods of Analysis publication. This book is the primary laboratory manual of regulatory chemists and research workers in agriculture in the U.S. and throughout the world.

Nomination must be submitted to the secretary of the association by April 1. Nominees need not be members of the association. Further information about the award may be obtained from William Horwitz, secretary, Box 40, Benjamin Franklin Station, Washington 4, D.C.

Arkansas Group Plans Feeder Calf, Pig Sales

CORNING, ARK.—The Northeast Arkansas Livestock Marketing Assn. has announced the dates for the feeder calf and feeder pig sales for Clay and Greene counties this year.

The association's spring calf sale will be conducted April 12, and the fall sale has been set for Sept. 6.

FEED FIRM OPENED

PHOENIX, ARIZ.—Ford Davis Feed Store has been opened here to deal in hay and feed.

At your service . . .

Don E. Rogers, manager of The Miller Publishing Company office in Chicago, has more than thirty years of experience in agricultural marketing . . . as a journalist, USDA advisor and representative of The Miller Publishing Company.

When you're looking for information about the grain or feed markets, call Don at Harrison 7-0515 or drop him a note at 2832 Board of Trade Bldg., Chicago 4.

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Famous camera that lets you snap a picture and see it sharp and clearly developed a short minute later.

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WATCH SUBSEQUENT ISSUES ***SEE HIM GROW!***

No labels to mail—no jingles. Just give the Weimaraner pup a name. That's all there is to it! The prize is a Philco Phonorama VI—the ultimate in stereophonic high fidelity reproduction. Retail value $675.00!

Peebles' DDF is the new dog food pre-mix that gives you 3 ingredients in one: Important milk nutrients, real cheese for appetite-sharpening aroma and flavor, essential vitamin fortification. It's easily incorporated into dry or wet dog food or biscuits. Saves money by reducing inventory needs, offers single-source purchasing economy. Try it. Write for complete information and sample.

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CONTEST RULES!

WINNERS WILL BE ANNOUNCED DURING WEEK OF PET FOOD INSTITUTE CONVENTION—SEPTEMBER 8 AND 9

1. Print the name you would give to the Weimaraner pup in 25 letters or less on entry blank or plain piece of paper.
2. Send your entry along with your name and address to: "Name the Pup" Contest, P.O. Box 7791, Chicago 77, Ill.
3. Contest is open to everyone in continental U.S. except employees and families of employees of Foremost Dairies, Inc. and its Divisions, its advertising agency and its agents. Entries will be judged on originality, sincerity, and aptness of thought. Judge's decision will be final.
4. Each entry must be the original work of the contestant. No entries will be returned—no correspondence will be entered into. Duplicate prizes will be awarded in case of a tie. Winners will be announced at the 1960 American Petfood Institute Convention. All entries become the property of Foremost Dairies, Inc. Contest is subject to all state, local and federal regulations.
5. All entries must be postmarked by not later than midnight May 12, and received no later than May 16.

OFFICIAL ENTRY BLANK

NAME THE PUP
P. O. BOX 7791
CHICAGO 77, ILL.

My name for the Weimaraner pup is_____

NAME_____ TITLE_____

FIRM NAME_____

STREET ADDRESS_____

CITY_____ ZONE____ STATE_____

Hoosier Turkey Trot Meeting Covers Marketing, Management and Diseases

By Special Correspondent

MITCHELL, IND. — Marketing, management and disease problems were discussed at the 16th annual Hoosier Turkey Trot Feb. 2-3. The meeting was held at Spring Mill Inn, Spring Mill State Park, near Mitchell.

M. C. (Maggie) Small, executive secretary-treasurer, National Turkey Federation, Mt. Morris, Ill., opened the two-day session by giving a report on what the federation is doing in promoting turkey use. His color slide tape-recorded presentation showed the color mats and turkey ads which are being made available to the food editors and the trade. The NTF promotional program has won a number of national awards in recent years.

Dr. Norris T. Pritchard, head poultry section, marketing economics research division, U.S. Department of Agriculture, Washington, D.C., and formerly a staff member at Purdue University, discussed "Marketing by Grade vs. Marketing by Price." This is a subject that constantly comes up in the turkey industry because a few of the marketing organizations in the country are and have been buying on a dressed graded basis for a number of years.

Dr. Pritchard pointed out that a study was made in 1957 and 1958 on 230 flocks through processors in Iowa, Kansas, Minnesota, Wisconsin and Virginia. Fifty-nine of these flocks were purchased directly from growers on a live basis after processing. Data was secured on a ready-to-cook graded basis. The study showed that the ready-to-cook method of buying, "because it is more accurate and more equitable," is the better basis of determining market prices of turkeys to growers, especially if the processor and his growers are interested in a program of producing and marketing higher quality turkeys to retailers and consumers.

"Don't Bug the Litter"

Dr. William Schofield, Ralston Purina Co., St. Louis, discussed "Don't Bug the Litter."

Dr. Schofield pointed to the tremendous change in turkey disease work that has taken place in the past 20 years. Also, he stated, "Growers today must cut the maximum number of corners possible, but some of these short cuts we take make real targets for stress."

Dr. Schofield told the turkey group, "There isn't an easy way to get the job done, and there is no substitute for sound management practices."

A management panel was held with Charles Reed, Goshen Farm Center, Goshen, Ind., as discussion leader. Panel members included the following: James Schwenk, Haysville Mills, Inc., Jasper, Ind.; Ronald Keesling, Muncie, Ind., and Robert C. Graham, Jr., Graham Bros., Washington, Ind.

SPEAKERS — Speakers shown (left to right) discussing the 16th annual Hoosier Turkey Trot program are: Dr. J. R. Wiley, director of development and technical services, Whitmoyer Laboratories, Inc., Myerstown, Pa.; Dr. Glyde A. Marsh, extension poultry specialist, Ohio State University, and Dr. Joe H. Ostendorf, diagnostic laboratory, Purdue University.

Mr. Schwenk discussed, "Control of Chiggers and Lice," and said he has had considerable experience with chiggers causing damage before proper control measures were put into effect. Chiggers do well in warm climates and can cause considerable loss in birds at market time, Mr. Schwenk pointed out. The usual chigger season in southern Indiana is from mid-June to September up until the first frost. Using the proper insecticide and spraying it on the range prior to moving the birds to the area has worked very well. The insecticide material will last usually about 4 weeks.

Management practices relative to the amount of feeder and waterer space required were discussed by Mr. Keesling, and brooder house management was covered by Mr. Reed. Mr. Graham discussed, "What I Am Doing for My Growers." He stated that his organization has as its goal to "sell the ability for our customers to make a profit." He said that the grower is entitled to a firm contract and that after the birds are marketed they should be provided with a written "recap of all costs and returns given the producer." This gives a basis for the grower to study what has been done and what should be done in the future, according to Mr. Graham.

Business Meeting

The management panel was followed by the annual business meeting of the turkey department of the Indiana State Poultry Assn. The group adopted a proposed reorganization of the turkey department to change the election time for directors and officers from the usual February meeting to the annual association meeting in October.

A report of promotional activities during the year was given by Marvin Mann, Frankfort; an auditing committee report was made and accepted, and Robert G. Riley, chairman of the turkey group, discussed the membership activities carried on during the year.

Annas Miller, chairman of the "Eat More Turkey" campaign, told those present that Indiana raised its quota and he thanked all who assisted in making this possible. A board of directors meeting followed the general session.

The morning program was headed by Dr. J. Holmes Martin, Purdue

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It is just as important that you as a feed manufacturer, jobber or dealer, know about new methods that will increase the profits from your feed.

Daily results from GRAN-I-GRIT'S New Grit Feeding Program are proving that both Broiler Growers and Egg Producers, by getting full feed utilization, are making more money through feeding larger sizes of grit.

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GRAN-I-GRIT Research Proved that larger sizes of grit, instead of passing through the digestive tract like small grit, stays and works in the gizzard.

Larger sizes of grit not only grind feed finer and more efficiently in the gizzard, but keep the digestive tract open for full feed utilization by completely grinding feathers and fibrous litter that all birds will eat.

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Top poultrymen use GRAN-I-GRIT. They know from experience that GRAN-I-GRIT is the best profit producing grit they can use. GRAN-I-GRIT is insoluble . . . does not dissolve and cannot change the mineral balance of your feed.

GRAN-I-GRIT is packed in 10 lb. Easy to Stock, Self Feeding Packs that save valuable storage space, time and labor and in 25, 50 and 80 lb. multiwall paper bags.

GRAN-I-GRIT IS BEST WITH *Eye Appeal*

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Chicks, broilers, pullets or layers must consume the proper amount of grit to get maximum results from feed and GRIT MUST HAVE EYE APPEAL before poultry will eat it. Side by side tests on poultry farms and by leading poultry authorities have proven that poultry of all ages prefer a light gray grit with black specks . . . the GRAN-I-GRIT TYPE . . . (as much as ten, fifteen, twenty to one) over grit of other colors.

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poultry science department, and during the afternoon by Robert G. Riley, chairman, turkey department, Indiana State Poultry Assn.

The Feb. 3 morning program opened with John F. Bergdoll, regional service supervisor, Allied Mills, Inc., Indianapolis, telling of "My Experiences as a Serviceman." Mr. Bergdoll stressed the problem of infectious sinusitis in the turkey flocks resulting in a large number of condemnations in processing plants under federal inspection. He said an early diagnosis should be made and that a high level use of antibiotic should be built up in the birds involved as soon as possible. The antibiotics are six times as effective when fed along with a low calcium diet, according to Mr. Bergdoll.

Disease Panel

A disease panel concluded the two-day event, with C. F. Martin, director of sales, Western Condensing Co., Appleton, Wis., discussing the use of copper sulphate in the treatment of diseases caused by fungi and molds.

Dr. Glyde A. Marsh, extension specialist, Ohio State University, discussed cholera. He pointed out that it is believed by some that cholera is carried by so-called healthy carriers, and that some stress will "trigger" off an outbreak.

Blackhead in turkeys was covered by Dr. J. R. Wiley, director of development and technical services, Whitmoyer Laboratories, Inc., Myerstown, Pa. Dr. Wiley pointed out that the cecal worm is even more important in transmission of this disease than was once thought. He stressed the use of sanitation followed by the use of drugs if necessary.

Dr. Joe H. Ostendorf, veterinary science department, Purdue University, acted as moderator of the panel.

Chairman for the Feb. 3 program was R. L. Houge, executive secretary, ISPA.

Eastern States Sets Up Premium Egg Marketing Agreement

WEST SPRINGFIELD, MASS.—The egg marketing department of the Eastern States Farmers Exchange, Inc., has completed a premium egg marketing agreement which will be available to producers who use Eastern States as an outlet for their production.

The program is described in an issue of the cooperative's publication, the Eastern States Cooperator.

The purpose of the agreement is to "assure a steady flow of high quality eggs through the egg marketing branches to meet the demands of our many discriminating buyers who are quality conscious," says Howard Whelan, Eastern States egg marketing department manager.

"Over the past few years, improved egg quality has played an increasingly important part in egg marketing," he said. "Breeders, feed formulators, poultrymen, egg handlers and retailers are all conscious of the need for supplying the consumer with a better and more uniform egg. Our egg marketing agreements are designed with that purpose in mind."

The egg marketing branches currently are discussing the terms of the egg marketing agreements with producers. This program will be available to those producers who can qualify—especially with the requirements for the production of high quality eggs.

"Pacemaker" has been selected as the brand name for eggs distributed under the Eastern States label and work is being completed on a new carton design. Wording on the egg carton reads, "Pacemaker Quality Eastern States Eggs"—plus the association's name and address and the locations of the egg marketing branches.

The Pacemaker brand for eggs is to be used on Eastern States regular egg promotions with customers who either do not have their own brand or who can be encouraged to use a second brand of eggs in their stores. In their present operations, most of the eggs handled by the marketing branches are custom packed for chain stores, supermarkets and distributors who retail eggs on milk or produce routes.

Oregon Co-op Makes Plans for Rebuilding

ROSEBURG, ORE.—Douglas County Farm Bureau Cooperative Exchange plans to rebuild on the site where its former building was destroyed by an explosion and fire Aug. 7. Andrew J. Townsend, manager, announced that the co-op has called for bids on its new structure.

The new store and office building will measure approximately 110 by 113 ft. and will have two floors. The main floor will have display space, warehouse area, business offices and nursery stock area open to a loading dock.

The new building will abut against the small structure recently constructed for feed and grain storage purposes.

No estimate was available on the planned investment for the new exchange. The cooperative, in business for nearly 40 years, was one of the heaviest losers in the blast and explosion.

Rigid laboratory control ends trace-mineral worries

Lime Crest TRADE MARK BRAND

All Lime Crest trace-mineral pre-mixes, both standard and custom made, are under rigid laboratory control. That control begins with the ingredients and doesn't end until the final product has been checked.

Because of Lime Crest's complete laboratory control (both chemical and spectrographic methods are used) the feed manufacturer who uses Lime Crest trace-mineral pre-mixes need not worry that his feeds contain too little or too much of the trace minerals his nutritionist has specified.

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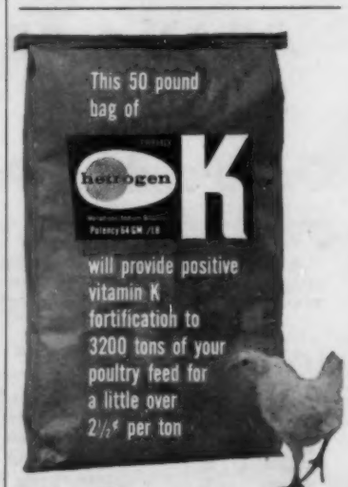
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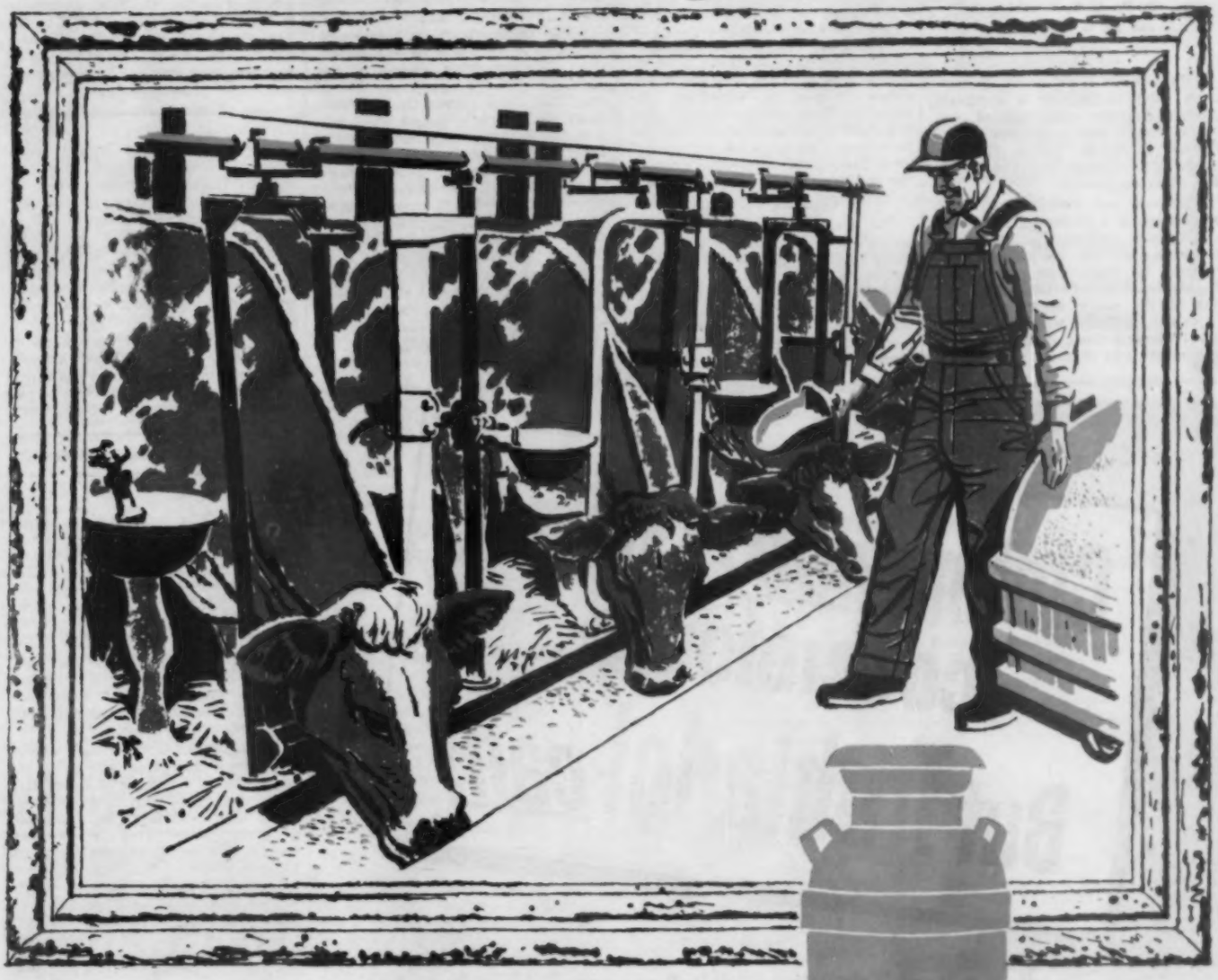

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WHEN DISTILLERS FEEDS are used to fortify dairy rations, cows produce up to 3 pounds more milk per day at less cost per pound of feed. This greater feed power is due to the rich protein, high fat content present in Distillers Feeds, plus the B-vitamins, minerals and other lactation factors—an outstanding combination with a high degree of palatability. That's why 75% of Distillers Feeds are used to enrich dairy rations.

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Salmonella Found In Feed Ingredients

By Dr. L. C. Grumbles
and Dr. J. R. Watkins
Texas A&M

Salmonellosis is a broad, general term used to identify a group of poultry diseases comprised of pullorum disease, fowl typhoid and paratyphoid infections. Within the Salonella group there are more than 400 different species.

Pullorum and fowl typhoid each are caused by a single organism. The one causing pullorum is Salmonella pullorum, and the one causing fowl typhoid is Salmonella gallinarum. Paratyphoid may be caused by any one of the many other species of Salmonella. Thus, when the term paratyphoid is used, it may refer to the infection in chickens and turkeys that can be caused by at least 50-60 different organisms.

Salmonella organisms, with the exception of the ones causing pullorum and fowl typhoid, are widely spread in nature and may infect a wide range of hosts varying from rodents to man. The primary host for S. pullorum and S. gallinarum is chickens or turkeys. There is an effective serologic test that will detect either of these two infections. Because of these characteristics, effective control and eradication programs have been carried on for many years. Such programs have reduced greatly the incidence of these two diseases.

Complex Problem

The paratyphoid infections present a much more complex problem. Because there is such a wide host range and so many different species are involved, it has been extremely difficult to develop successful control programs. Information and techniques have developed to the point that eradication or control programs in turkey flocks are now being attempted in some states. These states have either passed or have under consideration official regulatory requirements controlling the paratyphoid status of imported turkey poults or hatching eggs.

With increased efforts to develop programs of this type, it is essential that all methods of spread of the paratyphoid organism be evaluated carefully. Feed frequently has been found to be contaminated with Salmonella organisms. These reports, however, have been considered as isolated incidents and have not received much attention. Recently some specific feed ingredients were checked, especially those of animal origin, to see how frequently such materials contain these organisms.

In cooperation with the Texas Feed Control Service, samples were obtained and bacterial cultures were made. A summary of the results is given in the accompanying table.

Of the 200 samples of animal by-products cultured, 38 (19%) were found to be contaminated with Salmonella organisms. Two of the 37 samples of cottonseed or soybean meal examined also were found to contain these organisms. From the contaminated samples, 28 different species of Salmonella were isolated. Many are the same species that have been isolated in Texas in turkeys or chickens.

The finding of this large variety of Salmonella species in feed ingredients probably explains the multiplicity of species that have been recovered from poultry in recent years.

EDITOR'S NOTE: The accompanying article is taken from the December Texas Feed Service Report, issued by the Texas Agricultural Experiment Station. Dr. L. C. Grumbles is head of the Texas A&M College department of veterinary microbiology. Dr. J. R. Watkins is an assistant professor in the department of veterinary microbiology.

Summary of Salmonella Isolations From Feed Ingredients

Type product	No. samples	No. contaminated
Poultry by-products	30	5
Hydrolized feathers	18	1
Meat and bone scrap	152	32
Cottonseed and soybean meal	37	2

Of great significance is the fact that neither S. pullorum nor S. gallinarum, the organisms that cause pullorum disease and fowl typhoid, were recovered in this study.

The significance of feed as a source of Salmonella organisms is being investigated by a number of states. Results comparable with those found in Texas have been found by a number of investigators. This proves that careful consideration must be given to this problem. The problem has now been well established and described, but a simple answer is not apparent. It is apparent, however, that before effective control programs can be developed for the paratyphoid infections, we must find methods whereby such organisms can be eliminated from the feed.

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ST. JOHNS, ARIZ.—Dora Y. Greer has opened the Greer Supply Co. here, dealing in feeds and building supplies.

Claims *can't* control COCCIDIOSIS... But Trithiadol® *can!*

FACT TRITHIADOL effectively controls ALL commercially important species of coccidia. Proved in over 18 months of actual commercial use...in ALL major poultry areas...in EVERY growing season.

FACT TRITHIADOL gives top feed conversion...up to $40 extra per 1000 birds in impartial comparative tests.

FACT TRITHIADOL, and ONLY TRITHIADOL, has all 9 of these major advantages.

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New USDA Seal for Inspected Pet Foods

WASHINGTON—A change in regulations governing inspection of animal foods permits use of a new official seal on pet foods passed for inspection by the U.S. Department of Agriculture. The new seal replaces two inspection seals previously used.

Purpose of the new seal is to stress the fact that the ingredients and manufacturing process used to prepare the product have been continuously supervised by meat inspectors of USDA's Agricultural Research Service. Pet food inspection is done under direct supervision of a veterinarian, and both product ingredients and processing must meet ARS standards.

Manufacturers are not required by law to operate under federal inspection. Use of the service is entirely voluntary.

Two types of pet foods are prepared and inspected under the ARS pet food inspection program. One is termed a normal maintenance pet food. This is a well-balanced diet suitable without supplementation for year-round eating by healthy pets. It must contain at least 30% meat or meat by-products and at least 10% protein.

The other type is identified as an animal protein supplement and is intended for use in mixing with other foods or as a diet supplement where additional protein is required. Animal protein supplement must be formulated with at least 95% meat or meat by-products and must contain not less than 15% protein.

To help the purchaser understand what type of pet food is available under government inspection, the labels must plainly state the type of food as, for example, "A Normal Maintenance Pet Food," or "An Animal Protein Supplement." Up until now, this wording was incorporated in two official USDA seals which appeared on the labels. The new seal will convey only the information that the product has been prepared under continuous USDA supervision. The information differentiating between the two types of foods will be carried elsewhere on the label.

ARS inspection of pet foods assures the purchaser that only wholesome tissues, from animals determined by meat inspectors to be sound and fit for pet food, is used in the product. It also assures the buyer that the contents are exactly as listed in the guaranteed analysis and ingredients part of the label.

New Montana Feed Plant in Operation

HINSDALE, MONT.—The alfalfa dehydration plant and feed production facilities of Saco Alfalfa Products, Inc., are currently putting out 20-30 tons per day of range feeds, and the firm is prepared to fill orders throughout the area, reports Darrell Menge, president.

The plant is producing a complete line of feeds, including range supplements, feed lot rations, hog feeds, chick feeds and dairy feeds. It also is doing custom pelleting and mixing.

Although in steady operation, the plant will not be entirely completed until next fall, when a grand opening and open house will be held, Mr. Menge said. Facilities still to be added include a warehouse, offices and additional plant equipment which will boost the plant capacity eventually to 100 tons per day.

Mr. Menge is plant manager with George Lamb as foreman. Members of the staff are Jack Jacobson, Lewis Fjeldheim, Ronald Soennichsen, Gordon Taylor and Edwin Arnott.

Sales Set Record

NEW YORK—Net sales of National Distillers & Chemical Corp. for 1959 reached a new company high, and net income increased 25% over 1958, according to a preliminary report by John E. Bierwirth, chairman, and Roy F. Coppedge, Jr., president.

The record sales amounted to $575,566,000, compared with $524,310,000 in 1958, an increase of $51,256,000, or 10%.

National's net income for 1959 totaled $25,068,000, up $4,965,000, or 25%, over net income of $20,103,000 in the preceding year.

VITAMIN A

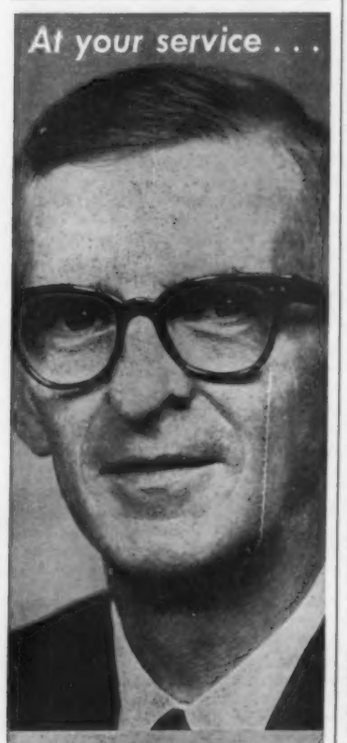
(Continued from page 36)

DPI, Hoffmann-LaRoche, Pfizer and the Food & Drug Administration. They reported the results in Table 1.

Based on the USP XV data reported by these four laboratories, Batch 1 of the proposed ANRC reference standard was assigned a potency of 9,250 units/gram. Samples were then submitted for collaborative assay and bioassay in a number of cooperating laboratories.

Collaborators were requested to compare the proposed standard with other vitamin A sources such as, the USP Vitamin A Reference Solution, all-trans-vitamin A palmitate in oil, one or more types of dry vitamin A and fish oil. Some of the data requested included shelf live, stability in mixed feeds at various temperatures and oral-supplementation liver-storage, diet-supplementation liver-storage and growth bioassays. While the initial emphasis has been on chicks, we hope to obtain data on other species as well.

With this brief survey of the proposed ANRC Vitamin A Reference Standard and the scope of the evaluation program, we will now consider the data obtained in several of the cooperating laboratories.



A Kansas-transplant on Madison Avenue . . . that's Paul Dittemore, manager of The Miller Publishing Company's New York office. If you're looking for information about the feed or grain markets, chances are he can come up with the answers you want.

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UP OR DOWN

By Dr. Leonard W. Schruben, Agricultural Economist, Kansas State College

Cattle on Feed Sets New Record

Since the depths of the depression in the early 1930s, the number of cattle being fed has followed a general trend upward. A new record was set in 1960. In the 26 states reported, it was estimated that 7.2 million head were on feed as of Jan. 1. This is an increase of 9% over the number on hand in the same states a year earlier. The number, on Jan. 1, 1959, was 6.6 million head.

The number of cattle on feed is an important indicator of the potential market for manufactured feeds. Because of the importance of the cattle feeding industry upon the success of your business, it is well for you to stop and consider the direction livestock numbers are taken.

In Exhibit 1, you will see a picture of the changes in the number of cattle on feed in 26 reporting states since 1930. Jan. 1 is the date shown on the chart.

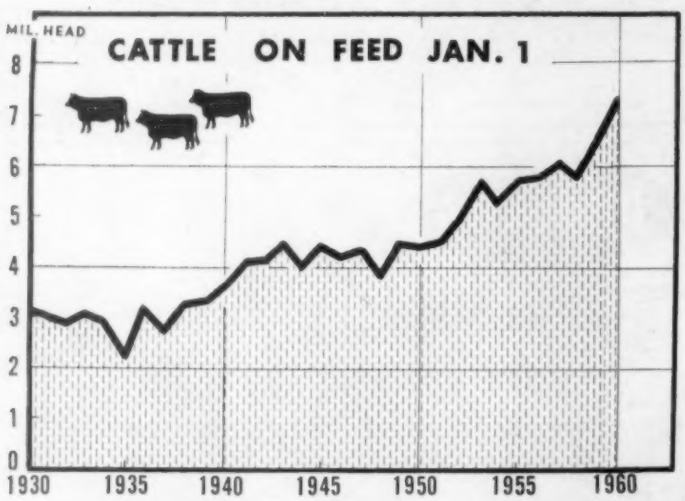
The number on feed Jan. 1, 1935, was barely in excess of 2 million head. In 1960, the high point, the number was 7.2 million head.

The increase this year did not occur uniformly over the country. For example, in the north central states, numbers were up 5% whereas in the western states, the increase was 16%. In leading feeding states of Iowa, Illinois and Nebraska, the increase amounted to from 4 to 6%. Kansas increased the number on feed by 28% as compared with 1959. California was up 32% and Colorado was up 14%.

What does this number increase mean in terms of increased marketings? According to the Crop Reporting Board, which compiled the statistics for this report, cattle feeders indicated they intended to market during the three months of January, February and March about 13% more of the Jan. 1 inventory this year than last. These intentions, of course, are not necessarily carried out because many things can happen to change plans.

As feeding efficiency has improved the total amount of concentrate required to produce 100 lb. of beef has decreased. Recent developments in nutrition indicate further growth in this direction. However, this does not necessarily mean less tonnage of manufactured feed will be fed. There likely is to be a higher proportion of the concentrate feeds supplied by commercial feed manufacturers because of possible economies. The trend toward specialization in fattening cattle continues, but this does not mean your market will expand automatically—you'll have to provide efficient feed at competitive prices.

EXHIBIT 1. Cattle on Feed Jan. 1 in 26 States, 1930-1960



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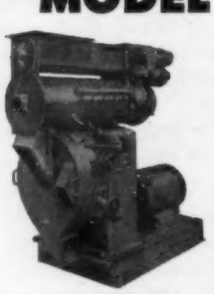
"CENTURY" MODEL

...available in two models—the 75 HP and the 100 HP, each with its own die and roller matched to motor size. The standard wherever pellets are produced in huge volume.



This is just one of California's complete line of pellet mills. Other models with capacities from 1 to 15 tons per hour. Write for complete information, or ask for your CPM representative to call.

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Also manufactured, sold and serviced by Henry Simon Ltd., Stockport, England.

Massachusetts Reports On Feed Freight Rates

AMHERST, MASS. — The University of Massachusetts has published the first in a series of three reports on the general subject of "Freight Rates on Feed" from Central Territory origins to New England and middle Atlantic states.

The author, Prof. Alfred A. Brown, department of agricultural economics and farm management, notes that Part I is concerned chiefly with the rate structure for grain and grain products in the area generally east of the Mississippi and north of the Ohio and Potomac Rivers. Part II will discuss Freight Rate—Feed Price Relationships and Part III will cover Grain Rate—Product Rate Relationships.

The rate structure discussed in the first report "was developed by the railroads when, except in special situations, most grain and grain-product transportation was an industry monopoly," Prof. Brown says. "Forces threatening this railroad tonnage have been at work and are increasing in magnitude. The rapidly expanding motor-carriers-of-freight industry and the St. Lawrence Seaway are the principal ones in transportation. Technological development affecting transportation needs by the grain-user industries is also a factor."

Prof. Brown's study considers the rate structure primarily, with some reference to one of the user industries.

The report indicates a need for "basic changes in the structure, regardless of any threat posed by other forms of transportation."

New Egg Plant

CAIRO, GA. — Work has been started on construction of a new egg processing plant at the State Farmers Market at Cairo, Carlos Cone, market manager, reports.

The egg concern will be operated by a corporation formed by a Miami group. The name of the corporation will be Eggs From the Farms of Cairo, Inc. The firm will seek to double or treble egg production in the Cairo area.

Coastal Bermuda Grass Pellets Give Good Beef Gains in Georgia Area

CAIRO, GA.—Availability of dehydrated Coastal Bermuda grass in pellet form will enable beef cattle producers in this extreme south Georgia area to match those of other areas with the best feeds for poundage gains, O. L. Brooks, superintendent of the Midville Experiment Station in Midville, Ga., said here.

Speaking on the topic, "Feeding Pelleted Coastal Bermuda Grass," Mr. Brooks said station experiments have demonstrated conclusively that beef cattle can add up to 2.96 lb. a day when fed artificially dried Coastal Bermuda gass in pellet form, half and half with grain. This is more than twice the gain from the best ordinary legume-grass mixture as feed, he said, and it about equals the gains recorded with the use of alfalfa pellets instead of Coastal Bermuda.

A plant for dehydrating and pelleting Coastal Bermuda grass is under construction in Cairo and is scheduled for operation for this year's grass crop. Coastal Bermuda grass will be grown by farmers under contract with the pelleting mill.

Drylot, Forage Feeding Of Hogs Under Study

CLEMSON, S.C. — A three-year study on fattening hogs in dry lot and on various winter forages has been completed at the Clemson College Coast Experiment Station, Summerville, according to Dr. R. F. Wheeler, head of the animal husbandry department.

The forages used were oats, Ladino clover and crimson clover. Pigs averaging approximately 71 lb. were fed shelled yellow corn and tankage free choice until an average lot weight of about 200 lb. was reached.

The hogs on forage made significantly faster gains than those fed in dry lot, according to Dr. Wheeler.

When forage was used there was a significant reduction in the amount of feed consumed for 100 lb. of gain; however, the amount of feed saved by forage was not large enough to make the use of forage profitable, he said.

A complete report of this experiment has been released in South Carolina Agricultural Experiment Station Bulletin 474, "Winter Forages for Fattening Swine." A copy may be obtained from the Clemson Agricultural Information Office.

Named Comptroller

DECATUR, ARK.—Howard A. Cozad has been appointed comptroller of all Peterson industries with headquarters here, according to a recent announcement.

At one time Mr. Cozad was assistant chief accountant of the Eagle-Picher Mining & Smelting Co., Joplin, Mo. He later organized and operated a large public accounting service in the area. More recently he served as supervisor of the special accounting department for the Thurston chemical division of W. R. Grace & Co., Joplin, and as office manager and assistant to the president of Midwest Services, Inc., also of Joplin, a construction and home improvement organization.

Prior to joining Peterson industries, he was secretary of the Financial Reserve Life Assurance Co. of Joplin.

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DRY VITAMIN A
Get it in the Midwest from
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PGB-250
DRY VITAMIN A

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CONTAINS vitamin A palmitate, edible tallow, gelatin and glucose. Butylated hydroxyanisole and butylated hydroxytoluene added as preservatives.
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This is what it all means

PGB-250 This is the trademark of DPi's dry vitamin A for fortifying feeds, pre-mixes, concentrates, and other products fed to poultry and livestock. The material consists of golden orange spherical particles in a size range between 30 and 120 mesh.

DPi has been a primary producer of vitamin A for a long time, was first to synthesize it commercially in this country, produces vitamin A in a modern plant using methods and processes developed in DPi laboratories.

Palmitate This is an inherently more stable form of vitamin A. It resists the effects of heat, moisture, and long storage. Testing vitamin A palmitate and the other commercial ester, vitamin A acetate, in stored feeds and premixes, we typically find 25% or better stability for the palmitate than for the acetate.

Gelatin is the most effective substance we have found for protecting vitamin A against air and minerals. Its digestibility makes the vitamin quickly available to the bird or animal.

250,000 The vitamin A potency of PGB-250 is 250,000 units per gram. You can also get potencies of 30,000, 20,000, or 10,000 units per gram. The diluent used in these dilutions is solvent-extracted soybean feed of particle size range especially chosen to blend with PGB-250.

You can get **PGB-250** *Dry Vitamin A* in 25-pound and 100-pound drums directly from us or from distributors throughout the country. For further information or a quotation, write *Distillation Products Industries,* Rochester 3, N. Y. Sales offices: New York and Chicago • Charles Albert Smith Limited, Montreal and Toronto.

JOE BROOKS

BY AL P. NELSON

A Visitor Comes to the Mill

The late afternoon sun was golden when the door to Joe's office opened, and in stepped tall, gray haired Joshua Reynolds, owner of the Reynolds Drug Store in Hansen's Creek. Joshua and Joe were good friends. Both belonged to the Chamber of Commerce and a couple of other local organizations.

"Hi, Josh," said Joe cheerily. "Say, this is mighty nice to have you visit us. You are usually so busy at the store you never can get away. What happened?"

Sixty-six-year-old Joshua smiled. "Well, Joe, I have just hired an extra clerk at the store. That's going to mean more free time for me. I've made mine—that is, enough for me and my wife to live comfortably. Now I want to enjoy life a little."

"Good idea," Joe agreed. "I hope to get where you are some day. You've got a host of friends and satisfied customers."

"Thanks, Joe. And I value my friends—like you and others. Now I have a little more time to read. I read my drug trade journals more thoroughly. I'm finding lots of good ideas in them—ideas I would like to try if I were younger."

"Say, you work harder than lots of younger druggists," Joe said sincerely.

"I did, but not any more. As I said I'm going to slow down. But I clipped one idea that I just couldn't pass up. I don't want to use it myself, but when I got to thinking it over, I figured, 'This is an idea Joe Brooks might want to use'."

Joe laughed and leaned back in his swivel chair. "Well, you know me, Josh, always looking for another good business building idea."

Joshua was thoughtful. "Well, this may not be a business building idea, Joe. But it's a good will building idea."

"I'm interested in those, too," Joe said.

"Good. I figured you would be. Joe, I have long thought that a lot of us business men are not grateful enough for the wonderful industries, businesses, clubs and people in our community. We sort of take them for granted. Even if we appreciate these people and groups—we never say so—at least not often enough."

"You're right," Joe said. "I've done some thinking along these lines myself now and then."

Joshua Shows Article

Joshua smiled, "I figured you had, and that's why I'm here." He unfolded a clipping. "This little article, Joe, tells of a South Carolina druggist who is running a series of ads recognizing the various firms and businesses in the area, giving a history of them and pointing out their contributions to community life through employment, money, etc. This ad quotes the druggist as saying, 'We believe in our town, and we believe in it strongly enough to tell the world about it in a series of institutional ads. Pride often lies dormant. It needs reviving and that is what our store is attempting to do in a new advertising series which we are going to call, Salute To Our Town'."

Joe's eyes were bright. "Josh, that's a wonderful idea. That series would fit in perfectly in this trade area. We've got a couple of creameries, a condensery, a poultry processing plant and some other industries that you could play up in such ads. Also some final rural and town organizations, including schools, bands, etc. You could keep running a series like this for a year or more."

"I?" said Joshua loudly. "I wasn't figuring on doing this alone. First place, it would be too expensive. Second, it would take too much time for one man to work up all this information. No, Joe, I need a partner in this deal—someone who believes in the community — boostin' ideas as much as I do. You're the fellow I would like to help me sponsor this project. We could list both our names in the ads, couldn't we?"

Joe did not answer for a moment,

"It wasn't there last year!"

This is the new 300,000 sq. ft. addition to Kraft Bag Corporation's converting plant at St. Marys, Georgia, scheduled to go "on stream" in February.

Here, in one giant integrated operation, logs from our own forest lands are turned into pulp, then into paper, and finally into heavy duty multiwall shipping sacks, using the most modern machinery and equipment the industry affords.

This expansion of our facilities is one more step in our constant efforts to provide our customers with the best in quality and service.

We invite your inquiries.

Paper Mill at St. Marys, Ga.

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Gilman Paper Company Subsidiary

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BUTLER POLLYPHOS has an all time high phosphorus content of 19% with a minimum 32% — maximum 35% calcium and no more than 0.19% fluorine.

BUTLER POLLYPHOS can be obtained in 100 lb. multi-wall bags, in bulk, or in truck or carload lots.

Phone, wire or write us or your nearest Butler Sales Agent for delivered prices of BUTLER POLLYPHOS to your plant.

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EXPANSION—Prater Pulverizer Co., Chicago, has added this new front and an additional 26,000 sq. ft. to its plant to handle increased production of mills and mixers. This is the third expansion since 1946 when a completely new plant was erected.

and Josh Reynolds could just about see the "thinking" wheels going around in Joe's head. "Wow, Josh, you sort of floored me," Joe finally said. "I've done something like this on a very small scale, honoring certain farm organizations. But this idea of yours is much bigger in scope and value."

"Come on now," chided Joshua. "Don't stall. I've been with you on lots of Chamber of Commerce and other club committees. I can tell by your face that you are in favor of it. What's holding you back?"

Joe chuckled. "Gosh, I hope my wife can't read my thoughts as clearly as you do. Yes, there is something that's holding me back, and that is that some of the other merchants in town might get envious of us if they see ad after ad listing your name and mine. I'm flattered, Josh, that you want me to help you, and I'm actually strong for the idea. But perhaps we should offer this idea to the Chamber of Commerce—we're both members—and ask them if they want to underwrite it. We'll tell them plainly if they don't want to, we would like to do it ourselves."

Joshua Agrees

Joshua was nodding his head slowly as Joe talked. "Doggone it, Joe, you sure have the community viewpoint. I didn't think some other businessmen might be envious, or think we were stepping on their toes. Let's give the Chamber of Commerce members a chance to handle this, and if they turn it down, you and I will do it. That way there will be no hard feelings."

"I'm glad you see it that way," Joe said warmly.

"But I'm warning you, Joe," said Josh, "that if some of those merchants want to make these institutional, good will ads about three fourths bargain advertising, I'll fight it tooth and nail. No individual merchant advertising in this deal. Just the listing of merchants' names."

"I agree," Joe said. "This is not a sales scheme. It's an idea to make everyone in the area—businessmen, farmers, townspeople and others—proud of our community by knowing more about the firms and individuals who contribute toward its progress."

"That's it," Joshua said, getting to his feet. "Let's push it to Ben Warner, the secretary, before the meeting and get his ideas. Now I've got to get back to the drug store. There's sure to be five or six prescriptions I've got to fill. Lots of flu around these days."

FIRM INCORPORATED

FARGO, N.D. — Farmers & Feeders Specialties, Inc., has filed articles of incorporation, listing $25,000 capitalization and these incorporators: Ernest A. Rydell and Kenneth L. Tedin, both of Rosholt, S.D., and E. Marsh Olson, Fargo.

GMI Names Director Of Physical Research

MINNEAPOLIS — Dr. J. William Haun has been appointed director of physical research at the Central Research Laboratories of General Mills, Inc., L. F. Borchardt, managing director, has announced.

In his new position, Dr. Haun will direct not only physical research but also activities in the packaging, milling and mechanical engineering departments. He replaces Mr. Borchardt, who recently became managing director of the laboratories.

Dr. Haun joined the research staff in 1956 as head of the chemical engineering department. He came to General Mills from Monsanto Chemical Co., Texas City, Texas, where for six years he had been a research engineer and a research group leader in their plastics division.

Dr. Haun received his education at the University of Texas, earning bachelor's and master's degrees in chemical engineering and a doctorate from the same institution.

It's DANNEN for SOYBEAN OIL MEAL and

- Cottonseed Meal
- Linseed Meal
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- Tankage
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- Other Feed Ingredients
- Grain—oats, corn, wheat, rye, barley, soybeans

DANNEN

DANNEN MILLS, INC.
Grain and Jobbing Division
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Ration Made for Farm Pond Catfish

MANHATTAN, KANSAS — Working with two zoologists, Dr. Waldon Hastings, of the Kansas State University flour and feed milling department, has developed an experimental pellet ration for feeding channel catfish in the farm pond.

The experimental ration, manufactured at Kansas State, contains about 30% protein.

"Any mill can produce these pellets if it gets enough business to make it worthwhile," says Dr. O. W. Tiemier, zoologist at Kansas State.

Feeding channel catfish in the farm pond in many ways may be compared to the farmer's cattle feeding operations, says Dr. Tiemier.

Dr. Tiemier and his colleague, Dr. James B. Elder, have been feeding channel catfish on an agricultural experiment station project entitled "Biology of Farm Ponds" for one year and have drawn these comparisons between raising cattle and channel cats:

1. Both "graze"—the cow in the pasture and the fish in the pond—but do much better if given a supplementary diet.

2. Diet needs of both for maximum growth must be determined and met.

3. Fish in ponds can be trained to come to the feeding place at a certain time of the day just as cattle do.

For the past year, four farmers with ponds within 25 miles of Manhattan have been cooperating with the Kansas State scientists in their study. The small impoundments around Lakes Waubaunsee and Council Grove also have been used. Cooperating with the Kansas Forestry, Fish & Game Commission, the two hope to enlarge their studies with an additional three feeding ponds this year.

As compared with channel cats stocked in 30 other farm ponds around Manhattan which received no feed, the tended fish have done "much better," Dr. Tiemier says. The farmers who have tasted the fish grown on diets found them "delicious—much better than catfish they get in streams or other bodies of water," he adds.

One of the questions the Kansas State researchers are attempting to answer is, "What does it cost to raise a pound of channel catfish?" At this point, they estimate this cost at about 15¢ lb., and Dr. Tiemier remarks that this is as cheap as farmers can raise beef.

The selling price for channel cats is 60@75¢ lb. If farmers could assure nearby hotels or restaurants a regular supply, they might make considerable profit, the K-State scientists believe.

Dr. Tiemier suggests that farmers buy the catfish when they are 3-4 in. long, stock their ponds and feed the fish when the water temperature gets to be 60° or above in the spring (about May 1) until the temperature gets below 60° in the fall (October 1). He explains that when the water is below this temperature, the fish don't feed anyway. A permit must be obtained from the Kansas Forestry, Fish and Game Commission to harvest fish other than by hook and line, however.

"It is possible to raise fish hatched one summer to weigh one pound at the end of the next summer, using present methods of feeding," Dr. Tiemeier says. "One pound is a good, edible size and as much as you'd want to eat at a meal."

Training the fish to show up for mealtime is relatively simple, he said.

"We recommend that they be fed every day at approximately the same time and the same place, and that feed should not be scattered all over the lake but rather put in shallow water at a predetermined place," Dr Tiemeier said. "It doesn't take long for the fish to catch on."

New Installations

DES MOINES, IOWA—Hot Spot Detector, Inc., Des Moines, has announced 47 new equipment installations made recently.

Six installations were made in each of Kansas and Illinois. Nebraska and Missouri each have four new installations. Other states and numbers of installations: Oklahoma, 3; Georgia, 2; Colorado, 1; Florida, 2; Louisiana, 2; Washington, 1; South Dakota, 1; Ohio, 3; Iowa, 3; Texas, 2; California, 3; Wisconsin, 1; New York, 1, and Minnesota, 1. An installation was also made in Osaka, Japan.

FLORIDA BROILERS

MADISON, FLA. — One half million broilers were sold from farms in the Madison area in 1959. Broiler contracts have been made between Larrie Cherry at Lee and several producers in Madison and neighboring counties.

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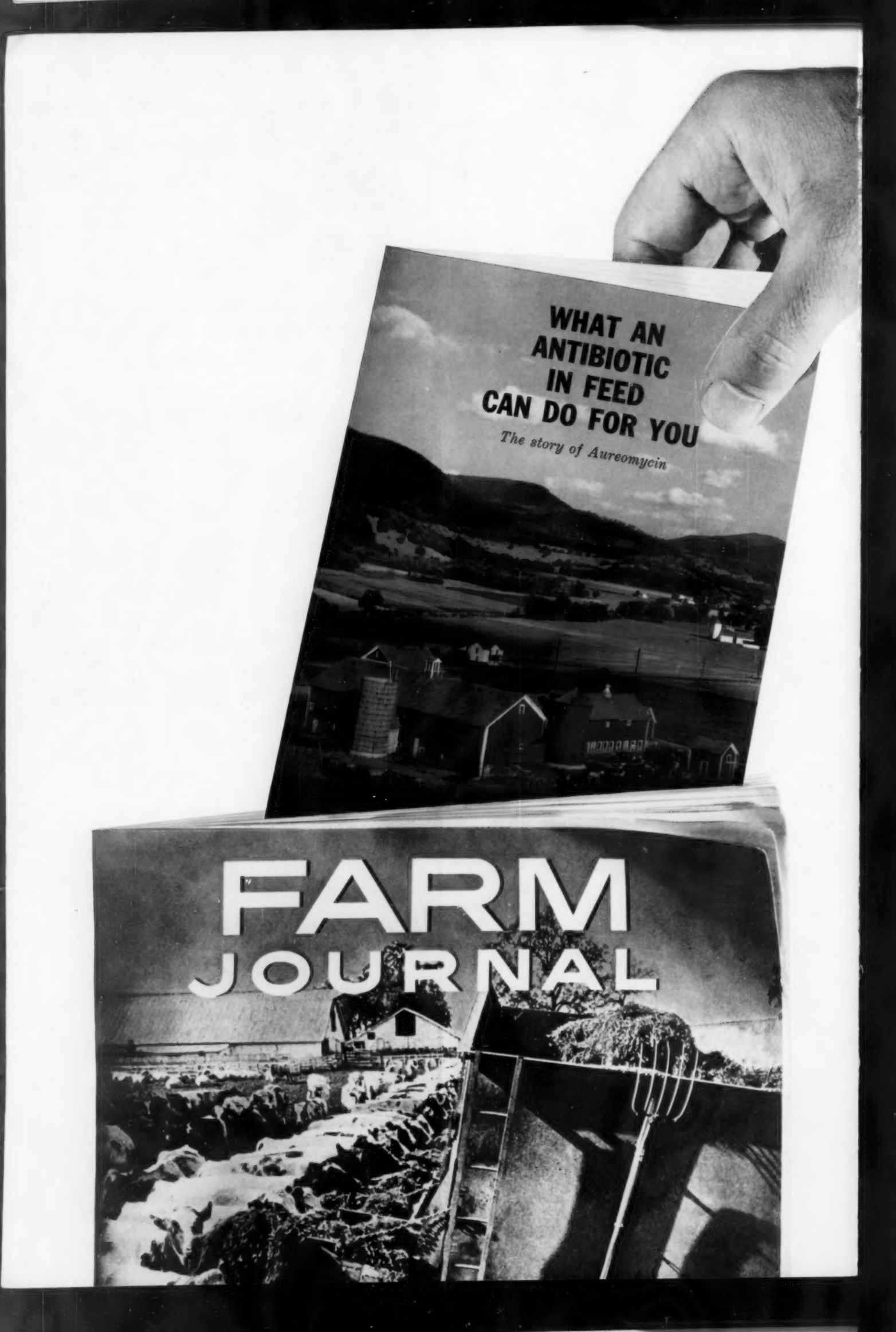
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3,100,000 farmers, many of them your best customers, will see this spectacular "report" bound in the March issue of Farm Journal.

It's the most significant report yet made on antibiotics: what they are; how they work; what they do; how they differ. It contains the complete story of AUREOMYCIN® — tells how this wide-spectrum antibiotic, in your formula feeds, promotes the health and growth of livestock and poultry.

A two-page advertisement outlines the purpose of the report and urges readers to lift it out and keep it for future reference. Many of your own customers will do this.

Big-scale promotion

Extensive promotion will back up this "print spectacular". Farm Journal itself will feature it in a special mailing to feed manufacturers and dealers and to all county agents, radio farm directors, vo-ag teachers, extension personnel and newspaper editors in farm areas.

Selected farm radio stations will carry spot announcements about it for two weeks—one week before and one week after the issuance of Farm Journal.

Cyanamid will feature it in a feed industry contest held during this present month, and with two colorful, point-of-sale posters.

All this spectacular promotion is certain to mean extra sales of formula feeds!

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Use the special, postage-paid postcard inserted here to order your copies of "WHAT AN ANTIBIOTIC IN FEED CAN DO FOR YOU". Your customers will be asking for extra copies. Your supply will be sent to you along with a point-of-sale poster that will identify you as "headquarters" for this report. American Cyanamid Company, Agricultural Division, New York 20, New York.

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Economists Give Answers to Question On Feeding Instead of Storing Grain

AMES, IOWA—Results of a study conducted at Iowa State University offer answers to a question that crops up consistently whenever farm policy is discussed.

That question is: What would have happened to farm incomes, feed grain and wheat prices and livestock prices if the corn and other feed grains that went into storage during the 1952-58 period had been fed to livestock? And if the stored wheat had also been fed to livestock?

A group of Iowa State University economists—Dr. Geoffrey Shepherd, Prof. Francis Kutish, Dr. Don Kaldor, Richard Heifner and Dr. Arnold Paulsen—recently concluded some research "to find answers to this question." They investigated the question in three steps:

(1) How much would livestock production have increased if the corn and other feed grains that went into storage during 1952-58 had been fed to livestock instead?

(2) How much lower would livestock prices have had to be to induce consumers to eat the larger supplies of meat, milk and eggs?

(3) What would have happened to farm income from livestock as a result of the lower prices?

Each year from 1952 to 1958, the economists reported, from 4 to 10 million tons of feed grains went into storage. The amounts average 6.3% of the total annual consumption by livestock.

They explained that the extra feed would not have been fed to all classes of livestock in equal amounts. "Production of some kinds of livestock, hogs or broilers, for instance, can be expanded much faster than other kinds such as beef or milk," they said. "In addition, feed grains make up different proportions of the rations fed to each kind of livestock."

The largest share of the extra feed grains would have gone into hogs, turkeys and broilers, the five Iowa state economists figured. About 15% of the average annual surplus would have gone into beef cattle. This, they said, would have produced the following effects:

Beef cattle: Supplies up 1%; prices down about 5%. This is mainly because pork supplies would have been substantially larger. Beef prices would have declined to prevent too much substitution of pork for beef.

Hogs: Supplies up 7.5%; prices down 19%.

Eggs and poultry: Prices down about 13%, mostly because all meats would have been more plentiful and cheaper than usual.

(Editor's note: It seems appropriate and proper to point out here that the report of the study did not say anything about the effect of the support program on grain production. This is, production might not have continued to expand had not support prices been attractive.)

The Iowa state economists made some further calculations to estimate the effect of feeding to livestock the wheat that had gone into storage in the 1952-58 period. They assumed that practically all the extra wheat would have gone into livestock rather than shipped overseas.

"If the price of wheat had been cut in an effort to sell more abroad, Canada, Argentina and Australia would probably have matched our price cuts so that we would have sold only a little more abroad," they said.

"Adding the wheat that went into storage during 1952-58 to the 6.3% increase in feed grains would have pushed total grain consumption by livestock up 10.3% larger than it actually was."

Hog production would have been about 12% larger, poultry production about 10% larger, according to the group, but the total value of all livestock production would have been reduced 10.5%. "The larger pig crop, for instance, would have dropped in value about 22% below the value of the smaller pig crops actually marketed in 1952-58," the economists pointed out.

In order to move the feed grains and wheat into livestock consumption, prices would have to move lower—on the average about 24% lower than they were, the Iowa state economists figured. Corn prices would have averaged about $1 bu. rather than $1.32. Wheat prices would have dropped to a level about 10% higher than feed grains, or from $1.98 to about $1.10 bu.

The cumulative effect of declines in both grain and livestock income would have dropped net farm income about 33% from what it actually was during the 1952-58 period. The economists calculated that total cash receipts would have declined about 11.5% and costs about 1% for the period. Farm costs tend to remain steady, so net farm income would have to absorb all of the decrease in gross farm income. This would have pulled net farm income down 33%.

The Iowa state economists added a warning note: "Sooner or later, the feed grain and wheat stocks that were held off the market during 1952-58 will have to be used. The 1952-58 increase in income may only have been borrowed from the future and, in one way or another, may have to be paid back."

PENB Names News, Information Officer

CHICAGO — Donald L. Vogt has been appointed news and information officer for the Poultry & Egg National Board, according to an announcement by Lloyd H. Geil, general manager.

D. L. Vogt

Mr. Vogt was previously publicity manager for Orange-Crush Co. and prior to that was with Needham, Louis and Brorby, Inc., advertising agency, working on the Kraft Foods account where he handled publicity on eggs and poultry products.

He has a background of promotion, public relations and advertising in the food merchandising field.

"... third addition of Fitzpatrick Bulk Storage Tanks ... very well pleased with performance of equipment."

Fred M. Conklin, Operations Manager, Alabama Flour Mills, Decatur, Alabama, says, "Alabama Flour Mills recently enlarged the bulk RED HAT Feeds storage by erecting eight 13-ton Fitzpatrick tanks. This is the third addition of Fitzpatrick tanks. We are very well pleased with the performance of this equipment. All tanks were built by the Fitzpatrick erection crew, and the quality of workmanship was satisfactory in every respect. Based upon our experience, we would certainly consider Fitzpatrick Tanks for any expansion of bulk feed storage."

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MIXING

(Continued from page 34)

would be required: 200 hogs, 65 feeder cattle, 50 milk cows plus replacement stock, 2,200 laying hens, 24,000 broilers or 1,300 lambs on feed.

Dr. Mutti stated that in 1954, only a little more than 30% of Illinois swine were fed out on farms handling this volume of business. In that census year, less than 5% of the laying flocks and 4% of the dairy herds used enough feed to economically justify an investment in farm processing equipment.

"Farm processing can make work schedules more flexible and may offer more freedom in selecting sources of protein supplements or feed ingredients. But, on the other hand, many farmers will not find it advisable to change to complete rations. Uncertainty related to tenancy is a definite factor limiting adoption of processing equipment on many farms," Dr. Mutti pointed out.

Milling Company's Experiences

M. D. King, president, M. D. King Milling Co., Pittsfield, reported that the company's milling operation selling custom manufactured feed direct to farmers had experienced a 300% growth in the last five years. He credited this to service performed for feeders in western Illinois and eastern Missouri. (See detailed story on King Milling operation on page 32 in this issue.)

King Milling, he said, has established a complete grain bank system allowing a farmer to bring in his entire year's requirements of corn or oats just as they move it from the field. The grain bank plan calls for drying the corn to No. 2 basis and using it in his feed as required over the next 12 months.

The firm also works closely with veterinarians in formulating special prescription feed formulations for a farmer's particular needs. King Milling also operates two bulk trucks and offers a $5 ton discount on bulk feed. About half of the firm's tonnage moves out in bulk.

Mr. King reported that the company feels a definite advantage by having a trained and competent nutritionist on its staff. His knowledge enables him to assist feeders in formulating feeds for the particular conditions or types of feeds that a farmer has available on his farm. He can also check all new ingredients, additives and drugs that come on the market and make recommendations for their use where they seem applicable.

Mr. King stated that he felt there were limitations to mixing feed on the farm. He pointed out that a farmer must evaluate his potential tonnage, the investment in grinding and mixing equipment, and whether he will have someone properly qualified to operate and maintain the equipment once it is installed. He cited the experiences of several farmers who had tried to mix their own formulations and were disappointed.

Hog Producer's View

Russell Jeckel, Delavan, Ill., hog producer, wound up the feed session with his experiences in producing 2,500 hogs a year by farrowing about 30 litters a month. He viewed his hog operation as a manufacturing process converting 1,400 tons of feed a year to 600,000 pounds of pork. He cited the importance of feed costs by showing University of Illinois cost figures listing the average cost of feed for 100 lb. of pork as $10.72. With feed making up such a large part of the cost, Mr. Jeckel believes that every effort must be made to reduce this wherever possible.

Mr. Jeckel, in partnership with his father, described the complete rations they are mixing in their farm processing plant. He showed starter ration formula used for pigs up to 40 lb. It included 1,200 lb. corn, 450 lb. 44% soybean meal, 300 lb. rolled oats, 20 lb. dicalcium phosphate, 20 lb. ground limestone, 10 lb. trace mineral salt, 20 lb. vitamin premix, 40 gm. antibiotic and 90 gm. 20% arsanilic acid. This ration costs them $60.90 ton.

His grower ration mixed on the farm for 40-100 lb. pigs added up to $49.95 ton. His complete finisher ration for pigs over 100 lb. and sows for the first half of gestation cost $45.98 ton.

For their breeding herd, the Jeckels use a modified soybean meal supplement and use a handfeeding program. Each ton carried 1,800 lb. of 44% soybean meal, 88 lb. of dicalcium phosphate, 88 lb. of ground limestone and trace mineralized salt. Cost was $72.75 ton for this concentrate.

With their volume of feed use, Mr. Jeckel figured their equipment cost for feed mixing was 80¢ ton and for electricity operation, 10¢.

Feed costs per hundred pounds of pork have edged downward in this operation during the last three years. Mr. Jeckel figures the average was $10.49 in 1957, $9.69 in 1958 and $9.46 in 1959. The 1958 average was $1.03 below the average of Illinois account keeping farmers.

Mr. Jeckel reported a $2.50 saving per hog by using a farm mixing system. Putting it another way, he said, farm mixed feeds have saved the Jeckels $3.50 ton of feed.

During the discussion period, Mr. Jeckel reported that before adding storage facilities last spring, total equipment investment at the Jeckels' feed mill was $7,200.

Plant Location Discussed

During the grain marketing session, H. N. Johnson, general traffic manager of Ralston Purina Co., St. Louis, discussed transportation problems of locating plants and facilities.

He emphasized that today the customer is interested in the lowest delivered cost of feed at the ultimate destination, the farm. "He doesn't care if this is achieved by using rail, barge, or truck, and he buys accordingly," Mr. Johnson asserted.

Then he outlined Purina's method of plant site selection. A milling expansion committee studies animal and poultry population, tax rates, labor rates, water and utility availability, railroad and highway facilities. Waterways are also included in the study.

But Mr. Johnson feels that water location is becoming less important as railroads have recognized the water competition threat and have made rate adjustments. He cited the cuts in rail rates for soybean meal and grain as ways that railroads have been able to recapture much lost business.

Mr. Johnson pointed out that transportation was only one but a very important consideration in plant location. "To serve customers efficiently, we must be served well by all modes of transportation," he declared.

"We want to locate on railroads that give good service and which are alive to the needs of our industry and are willing to carry through on a milling-in-transit basis," he said. "Continued growth of our industries is directly related to the health of our total transportation system."

Texas Receives Grant

NEW YORK, N.Y. — Texas A&M College has accepted a grant from American Cyanamid Co. to study methods for administering Aureomycin chlortetracycline to beef cattle under range and winter conditions.

Prof. W. T. Berry, Texas agricultural experiment station, will try to find the most efficient and practical method for feeding the antibiotic to cattle under winter range conditions. He will make weight gain and palatability comparisons between yearling cattle receiving Aureomycin in grain concentrates and in self-fed antibiotic-salt mixtures.

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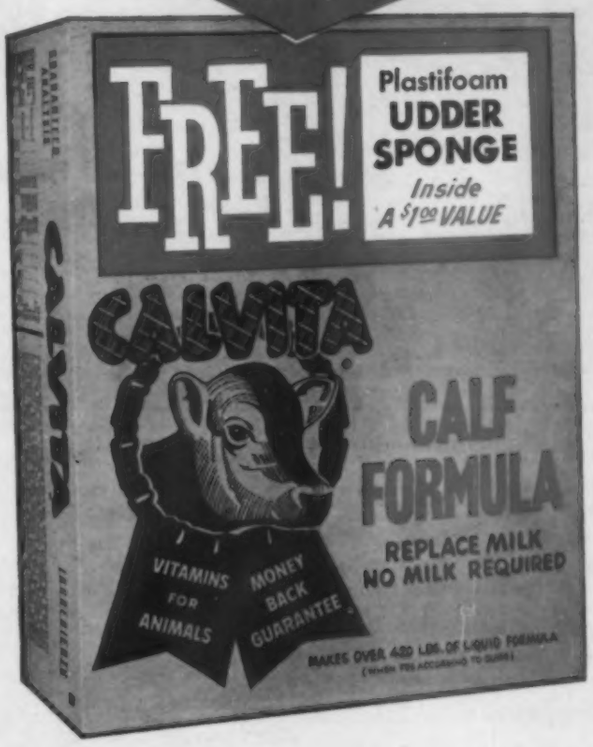

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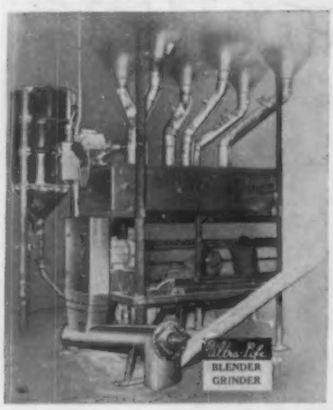
No. 7806—Super Concentrate Plan

Ultra-Life Laboratories has told of its new plan for feed manufacturers which involves the use of an on-the-farm feed mill and the sale of super concentrates to farmers. The mill is called Ultra-Life's Blender-Grinder. It is described as a compact machine costing less than $1,000 which automatically mixes and grinds six ingredients at a rate of 3,000 lb. per hour. Ingredients, stored in bins above the machine, are fed onto the blender in proper proportion by means of measuring sleeves. After being blended and ground, the feed may be augered to an automatic feed hopper, wagon or holding bin. Attachments for adding molasses, liquid fat and medication can be supplied with the mill. The company said that the Blender-Grinder, as well as Ultra-Life Super Concentrates, is sold through feed manufacturers participating in the program. Ultra-Life, the announcement said, furnishes feed firms and feeders with formula service, testing service and nutritional and management advice. Further details may be obtained by checking No. 7806 on the coupon and mailing it.



No. 7802—Plastic Shipping Sack

Owens-Illinois Glass Co. announced it will begin production of a heavy duty plastic shipping sack for industrial and agricultural products. Features, according to company literature, include strength, eye appeal and effective protection against moisture and contamination by foreign substances. The plastic bag will be of the extruded blown film type, and because a continuous plastic tube of any color can be printed with multicolor designs, an infinite variety of attractive packages can be made. For details, check No. 7802 on the coupon and mail.

No. 7791—Mill Planning Booklet

A method of designing, engineering and constructing a complete feed mill tailored to individual needs is outlined in a booklet issued by the Myers-Sherman Co. The booklet, called "Let's Build a New Kind of Feed Mill," explains how feed mills of all types and sizes can be planned

and built with maximum efficiency and economy, company literature says. The booklet shows how one organization can handle every facet of the job from the idea stage through completion. It describes the way in which the company designs and engineers a tailor-made feed plant, plans its construction and arranges its financing through a variety of plans. Detailed illustrations show several different types of mills. For copies, check No. 7791 on the coupon and mail.

No. 7804—Square Hole Nests

A line of square hole nests has been announced by the James Manufacturing Co. They are available in three types, the company says—standard, front roll-away and rear roll-away.

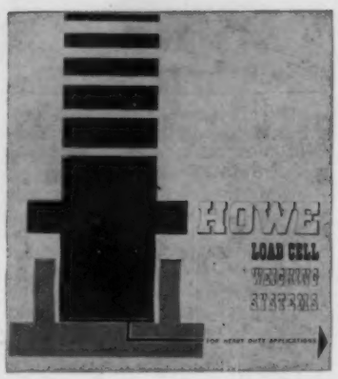
Each type is offered in 10, 14 and 21 hole sections. In the new nests, the 14 and 21 hole sections have smaller holes for the lighter breeds of layers. A folder is available. For more information, check No. 7804 on the coupon and mail.

No. 7801—Bulk Truck Service

Productive Acres Manufacturing Co., Inc., has announced a service to help bulk truck owners get more use years out of their used bulk trucks. According to the company, the service helps stabilize a unit to the present used body, regardless of style, design or make. The firm has plants located all over the U.S., company literature said. For further information, check No. 7801 on the coupon and mail.

No. 7803—Weighing System Brochure

The Howe Load Cell Weighing System is the subject of a four-page brochure released by the Howe Scale Co. Typical heavy-duty applications,



such as motor truck scales, railroad track scales, automatic batching, check weight scales, tank or hopper scales and crane hook scales are described and illustrated in the brochure. Features of the system, which is available for installations involving 500 lb. to hundreds of tons, are outlined. Detailed drawings and photos graphically describe the operation. For copies, check No. 7803 on the coupon and mail.

No. 7805—Antibiotic Supplement

S. B. Penick & Co. announces that it has new test data and other information on its "Fortracin" antibiotic feed supplement. The company said that "in recent impartial broiler feed tests conducted by a well known research group, Fortracin produced

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- ☐ No. 7804—Square Hole Nests
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better weight gains and feed efficiency ratios than other antibiotics tested. In stability tests run concurrently by the same group, Fortracin was shown to be stable when pelleted, with 96% of its original potency retained." The announcement said the supplement was fed to chicks over eight-week periods at a level of 4 grams per ton. Fortracin was described as a purified, non-metallic salt of bacitracin. It is available to premix formulators and feed mills in potencies of 10, 25 and 100 gm. per pound. Test data and other information may be obtained from Penick by checking No. 7805 on the coupon and mailing it.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number of the coupon and forwarding it to Feedstuffs.

No. 7764—Mixing, weighing unit, Duplex Mill & Manufacturing Co.
No. 7759—Piperazine product, Rhodia, Inc.
No. 7760—Hay shredding device, Daffin Manufacturing Co.
No. 7763—High energy milk replacer, Western Condensing Co.
No. 7765—Conversion table, St. Regis Paper Co.
No. 7766—Chemical dehorning product, Hess & Clark.
No. 7767—Automatic pelleting, Sprout, Waldron & Co.
No. 7768—Air lock feeder, Young Machinery Co., Inc.
No. 7769—Conveyor belting, Russell Manufacturing Co.
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No. 7774—Round chick fount, National Ideal Co.
No. 7775—Calf formula promotion, National Vitamin Products Co.
No. 7776—Bovitrin promotion, Merck & Co., Inc.
No. 7777—Picking machine, Gainesville Machine Co., Inc.
No. 7778—New Terramycin package, Chas. Pfizer & Co., Inc.
No. 7779—Vitamin K assay method, Heterochemical Corp.
No. 7780—Feed mill planning, Myers-Sherman Co.
No. 7781—Screener catalog, Orville Simpson Co.
No. 7782—Dry dog food, Valley Mills.
No. 7783—Guaranteed roller mill, Myers-Sherman Co.
No. 7784—Dehydration equipment, Edw. Renneburg & Sons Co.
No. 7785—Bulk handling report, Fuller Co.
No. 7786—Loading bulletin, Magline, Inc.
No. 7787—Crop dryers, Lennox Industries, Inc.
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No. 7789—Cut-off system, Howe Scale Co.
No. 7790—Container system booklet, Fruehauf Trailer Co.
No. 7792—Cattle feed fortifier, Dawes Laboratories, Inc.
No. 7793—Antibiotic as silage preservative, Commercial Solvents Corp.
No. 7794—Financing plan, Daffin Manufacturing Co.
No. 7795—Egg cartons, Tobias Enterprises.
No. 7796—Merchandising program, National Vitamin Products Co.
No. 7797—Poultry disease treatment, Abbott Laboratories.
No. 7798—Proportioning pump bulletin, B-I-F Industries.
No. 7799—Bulk feed body, North American Manufacturing Co.
No. 7800—Hinged side panel, Sprout, Waldron & Co., Inc.

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Dehydrated Alfalfa

Strong Scott

"WE CUT OUR GRINDING POWER COSTS BY 29% AND DOUBLED OUR FEED VOLUME . . ."

says Galen Hartung, manager of Dane County Farmers Union Co-Op, Cottage Grove, Wisconsin

Galen Hartung, above, manages the new Dane County Farmers Union Co-Op elevator which was completed in 1958 by Hogenson Tank and Construction Co.

Not one screen has had to be changed on this Hammermill. The 100 H.P. motor on the mill and 40 H.P. on the blower provide the ideal combination for efficient, high-capacity grinding at Dane County Farmers Union Co-Op.

"One year ago we installed our Strong-Scott quick change Hammermill," said Galen. "Since then, our books show that we have doubled our income from grinding and that our power costs were 29% less than what they used to be with our old mill.

"We are still grinding on the first of the four corners of the hammers which have given us over $14,000.00 income at a charge of 8 cents per CWT for custom grinding.

"We get very good capacity from our Hammermill and use the quick change constantly," he concluded. "We have never had any maintenance at all." The Strong-Scott Hydraulic Truck Hoist is also used at Cottage Grove.

THE **BIG YEAR** FOR NEW EQUIPMENT

The **Strong Scott** Mfg. Co.
451 Taft Street N. E.
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Dept. CG-60

Convention Calendar

Feb. 21-23 — Ohio Grain & Feed Dealers Assn.; Commodore Perry Hotel, Toledo; sec., George G. Greenleaf, 5625 N. High St., P.O. Box 121, Worthington, Ohio.

Feb. 22 — New Mexico Feeders' Day; New Mexico State University, State College; chm., Dr. John H. Knox, Animal Husbandry Dept., University Park, N.M.

Feb. 22-25 — Colorado Livestock Days; Colorado State University, Fort Collins; chm., Paul S. Pattengale, Extension Animal Husbandman.

Feb. 22-25—Mississippi Swine Short Course; Mississippi State University, State College; Dean and Director, Division of Agriculture.

Feb. 23-24—Virginia Feed & Nutrition Conference; Hotel Roanoke, Roanoke; J. Paul Williams, sec., Virginia State Feed Assn., 615 E. Franklin St., Richmond, Va., or Prof. Paul M. Reaves, Department of Dairy Science, Virginia Polytechnic Institute, Blacksburg, Va.

Feb. 24—Purdue Marketing Clinic; Purdue Memorial Center and Purdue Memorial Union, Purdue University, Lafayette, Ind.; R. B. Wilson, Department of Agricultural Economics.

Feb. 25 — Iowa Swine Producers Conference; Iowa State University, Ames; William Zmolek, Animal Husbandry Dept.

Feb. 25-26—Northeastern Poultry Producers Council Business Management Workshop for Egg and Poultry Cooperatives; Willard Hotel, Washington, D.C.; Alfred Van Wagenen, 10 Rutgers Place, Trenton 8, N.J.

Feb. 25-26—South Carolina Poultry Disease and Management Short Course; Clemson College, Clemson, S.C.; Dr. B. D. Barnett, head, Poultry Dept.

Feb. 25-27 — North Dakota Grain Dealers Assn.; Municipal Auditorium, Fargo; sec., Lloyd Hanson, 513 Black Bldg., Fargo.

March 3—Illinois Swine Day; Uninois, Urbana; K. E. Harshbarger, Dairy Science Dept.

March 3—Illinois State Turkey Growers Assn.; Winter Meeting, University of Illinois, Urbana; sec., S. B. Swann, Kauffman Turkey Farms, Waterman, Ill.

March 3—Illinois Swine Day; University of Illinois, College of Agriculture, Urbana; Harry G. Russell, Livestock Extension Specialist.

March 7-8—Grain & Feed Dealers National Assn.; Hotel Muehlebach, Kansas City; sec., Herbert L. Sharp, 400 Folger Bldg., Washington 5, D.C.

March 9—Mutual Millers & Feed Dealers Assn.; Statler-Hilton Hotel, Buffalo, N.Y.; sec., Mrs. Donald E. Mattison, Box 8, Cattaraugus, N.Y.

March 17-18—Oregon Feed & Seed Dealers Assn.; New Sheraton Hotel, Portland, Ore.; mgr., Russ Hays, 702 Lewis Bldg., Portland, Ore.

March 17-18 — Maryland Nutrition Conference; Shoreham Hotel, Washington, D.C.; chm., Richard D. Creek, University of Maryland, Department of Poultry Husbandry, College Park.

March 23—Distillers Feed Conference; Sheraton Gibson Hotel, Cincinnati; sponsored by Distillers Feed Research Council; exec. director, Dr. Lawrence E. Carpenter, 1232 Enquirer Bldg., Cincinnati, Ohio.

March 23-24—National Broiler Industry Conference; Dinkler-Plaza Hotel, Atlanta, Ga.; vice pres., Frank Frazier, P.O. Box 368, Richmond, Va.

March 27-29 — Colorado Grain, Milling & Feed Dealers Assn.; Shirley-Savoy Hotel, Denver; sec., O. W. Eriksen, 519 Boston Bldg., Denver 2.

March 29—New Jersey Poultry Nutrition Institute; Rutgers University, New Brunswick, N.J.; R. L. Squibb, chairman, Poultry Science Department.

March 31-April 2—Pacific Dairy & Poultry Assn. Exposition and Convention; Stardust Hotel, Las Vegas, Nev.; association office, 1304 E. 7th St., Los Angeles 21, Cal.

April 1-2 — Texas Grain & Feed Assn., Shamrock Hotel, Houston; sec., Ray B. Bowden, 407 Fort Worth Club Bldg., Ft. Worth, Texas.

April 5-7—Nebraska Grain & Feed Dealers Assn.; Pershing Municipal Auditorium, Lincoln; sec., Howard W. Elm, Trust Bldg., Lincoln, Neb.

April 6—Purdue Egg Day; Purdue University, Lafayette, Ind.; David D. Jackson, Extension Poultryman.

April 11-13 — Poultry and Egg National Board, LaSalle Hotel, Chicago, Ill.; mgr., Floyd Geil, 8 S. Michigan Ave., Chicago 13, Ill.

April 17-19—Animal Health Insti-

New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings, those added to the column in the current week appear separately from ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

March 13-17 — Grain Elevator & Processing Superintendents; Jung Hotel, New Orleans, La.; sec., Dean M. Clark, "Grain" Magazine, 1120 Board of Trade, Chicago 4, Ill.

April 10—Informal Poultry Nutrition Conference; Chicago, Ill.; Dr. M. L. Sunde, Poultry Department, University of Wisconsin, Madison.

Oct. 20-21—Cooperative G.L.F. Exchange, Inc.; stockholders annual meeting; Onondaga War Memorial Bldg., Syracuse, N.Y.

May 15-16—Missouri Grain & Feed Assn.; Hotel Governor, Jefferson City; sec., D. A. Meinershagen, Higginsville.

Oct. 16-18—Kentucky Poultry Federation and Kentucky Poultry Improvement Assn.; Kentucky Hotel, Louisville; John W. Tuttle, field manager.

TESTS ON CHICKS SHOW THAT *Vitamin A* STRENGTHENS THE BARRIER AGAINST INFECTION

Mucous membranes lining the gastrointestinal and respiratory tracts are the primary barriers which prevent the entry of infective agents into the body proper. Vitamin A is critically involved with the defense mechanism of the mucous membrane. Adequate vitamin A keeps the mucosa healthy, enables the chick to resist infection. Insufficient vitamin A renders the chick liable to infection through both respiratory and intestinal membranes.

Why are liver stores of vitamin A important?

Reserves of vitamin A are the essential safety factor against stress. Reserves are stored in the liver, but only after other tissues are adequately supplied. Therefore, when chicks show good liver storage, it is a sign that other tissues are saturated with vitamin A.

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Test after test has shown that preformed vitamin A such as Nopcay Type V produces very high liver storage. This means that it protects the mucous membranes and helps combat infections such as chronic respiratory disease and coccidiosis.

Adequate vitamin A stored in the liver is an indication that other tissues are fully supplied. For example...
Respiratory membranes, where vitamin A helps combat colds, nutritional roup, air sac infection (CRD).
Intestinal membranes, where vitamin A helps strengthen the barrier against coccidiosis, Capillaria worms, intestinal enteritis.

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This production makes possible a continuous, economical supply of SOLULAC . . . your best source of unidentified growth factors so vital in the feeds you produce. SOLULAC is a better nutrient because it's a fermentation product from corn. It's recommended by the same leading nutritionists who have cautioned you that "slimming up" on unidentified growth factors can only produce poor results.* Remember, feed sales follow feedlot performance! So, it will pay you to keep SOLULAC in your feed formulas. Don't be misled by cheaper *or* more expensive substitutes . . . insist on *free flowing* SOLULAC! Available in 50 and 100 lb. bags or bulk carloads.

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CALENDAR FOR 1960-61

FEBRUARY

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tute; Shoreham Hotel, Washington, D. C.; sec., D. L. Bruner, 512 Shops Bldg., Des Moines 9, Iowa.

April 21—New England Dairy Feed Conference; Hotel Lenox, Boston, Mass.; chm., Dr. Stanley N. Gaunt, Dairy and Animal Science Dept., College of Agriculture, University of Massachusetts, Amherst.

April 22—Indiana Cattle Feeders Day; Purdue University, Lafayette, Ind.; chm., Dr. W. M. Beeson, Animal Science Dept.

April 21-23—California Hay, Grain & Feed Dealers Assn.; Ambassador Hotel, Los Angeles; sec., John Gilmore, Blue Anchor Bldg., 1400 10th St., Sacramento 14, Cal.

April 21-23—Kansas Grain & Feed Dealers Assn.; Broadview Hotel, Wichita, Kansas; sec., Orris E. Case, 609 Wiley Bldg., Hutchinson, Kansas.

April 22 — Nebraska Livestock Feeders Day; University of Nebraska, College of Agriculture, Lincoln; chm., Wm. J. Loeffel, Animal Husbandry Dept., Lincoln 3, Neb.

May 1-4—National Fisheries Institute; Hotel Fontainebleau, Miami Beach, Fla.; asst. gen. mgr., Mal Xavier, 1614 20th St. N.W., Washington 9, D.C.

May 9-11 — American Feed Manufacturers Assn.; Conrad Hilton Hotel, Chicago; sec., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

May 9-11 — Association of American Feed Control Officials; Sheraton-Blackstone Hotel, Chicago; sec., Bruce Poundstone, Feed and Fertilizer Dept., Agricultural Experiment Station Bldg., University of Kentucky, Lexington.

May 15-17 — National Cottonseed Products Assn.; Roosevelt Hotel, New Orleans, La.; sec., John F. Moloney, Box 5736, Memphis 4, Tenn.

June 12-14—Eastern Federation of Feed Merchants, Inc.; Whiteface Inn, Lake Placid, N.Y.; exec. director, Austin W. Carpenter, Sherburne, N.Y.

June 13-15 — American Association of Feed Microscopists; Hilton Hotel, San Antonio, Texas; sec., G. M. Barnhart, Missouri Department of Agriculture, Jefferson City, Mo.

June 14-15 — Alabama Poultry Industry Assn.; Municipal Auditorium (Exhibits) and Thomas Jefferson Hotel, Birmingham, Ala.; sec., W. L. Walsh, Box 567, Montgomery.

June 14-17—NEPPCO Egg Quality School; Rutgers University, New Brunswick, N.J.; Dr. A. Van Wagenen, NEPPCO, 10 Rutgers Place, Trenton 8, N.J.

June 19-21—Indiana Grain & Feed Dealers Assn.; Mid-Summer Convention; French Lick-Sheraton Hotel, French Lick; sec. Fred K. Sale, 600 Board of Trade Bldg., Indianapolis 4.

June 21-22—Association of Southern Feed & Fertilizer Control Officials; Riverside Hotel, Gatlinburg, Tenn.; sec., Maurice B. Rowe, Department of Agriculture, 1119 State Office Bldg., Richmond 19, Va.

June 23-24—Northeastern Poultry Producers Council Business Management Conference for Egg and Poultry Marketing Cooperatives; Hotel Viking, Newport, Rhode Island; Alfred Van Wagenen, 10 Rutgers Place, Trenton 8, N.J.

July 25-26 — Georgia Feed Assn.; General Oglethorpe Hotel, Wilmington Island, Savannah; sec., Will L. Kinard, Suite 210, 3240 Peachtree Road Bldg., Atlanta 5, Ga.

Aug. 2-5 — Poultry Science Assn.; University of California, Davis; sec., C. B. Ryan, Texas A&M College, College Station.

Sept. 1-6—International Congress on Nutrition; Sheraton-Park Hotel, Washington, D.C.; sponsored by International Union of Nutritional Sciences; sec., Milton O. Lee, 9650 Wisconsin Ave., Washington 14, D.C.

Sept. 14-16—National Feed Ingredients Assn.; Liggetts Holiday Inn, Burlington, Wis.; sec., Paul W. Bonewitz, 1023 Equitable Bldg., Des Moines, Iowa.

Sept. 21-23 — Feed Production

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Perma-Mix is available in six standardized combinations of vitamins and antibiotics — or, blended to your exact specifications. Write for the full story on Perma-Mix. Immediate service from our strategically located distributing and manufacturing facilities.

A Basic Source For Your Vitamins: **PERMADRY—Vitamin A; PERMA-D—Vitamin D_2 and D_3; PERMA-E—Vitamin E; PERMA-SOL—Water dispersible vitamins and antibiotics; CHOLINE CHLORIDE SUPPLEMENTS** ***and all other vitamins used in formula feeds***

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"Lotta dozen" Says

Push 'Em... More Dealers Do!

"I've seen it myself. Lots of those keen-witted, sharp-eyed, fast-peddling farm dealers just haven't stopped to think that there just might be a real whiz-bang seller in the oyster shell field.

"Have you ever considered why EGGSHELL BRAND Oyster Shell is a top-seller in the industry?

"Could be it's the downright digestible nature of EGGSHELL BRAND. Real palatable to a hungry hen, you know, this pure, soft reef shell.

"Or, maybe it's only because these EGGSHELL BRAND folks just promote the dickens out of their product . . . talking it up in the trade papers . . . always settin' up counter displays . . . and, in general, helping to make sales easy.

"On the other hand, it may be even simpler than that. Might be that dealers prefer 'em because poultrymen prefer 'em. And poultrymen prefer 'em because hens prefer 'em.

"Pretty tricky of us hens, I'd say."

EGGSHELL BRAND OYSTER SHELL
a product of
OYSTER SHELL CORPORATION
BALTIMORE, MARYLAND

★ Buy and Sell Through WANT ADS ★

Sept. 22-23 — Arkansas Formula Feed Conference; University of Arkansas, Fayetteville; chm., Dr. E. L. Stephenson, Department of Animal Industry and Veterinary Science.

Oct. 4-6 — Northeastern Poultry Producers Council; Exposition and Convention; Onondaga County War Memorial Bldg., Syracuse, N.Y.; Doris Endebrock, Exposition Mgr., 10 Rutgers Place, Trenton 8, N.J.

Oct. 5-7—Texas Nutrition Conference, Texas A&M College Station; chm., Dr. J. R. Couch, Department of Poultry Science.

Oct. 11-12—Virginia State Poultry Federation convention and trade show; Hotel Roanoke, Roanoke, Virginia; sec., J. Paul Williams, 615 East Franklin Street, Richmond 19.

Oct. 12-13 — Association of American Feed Control Officials Annual Meeting; Shoreham Hotel, Washington, D.C.; sec., Bruce Poundstone, Feed and Fertilizer Dept., Agricultural Experiment Station Bldg., University of Kentucky, Lexington.

Oct. 27-28—National Swine Industry Conference; University of Kentucky, Lexington.

Nov. 2-3—Illinois Feed Assn.-Illinois Poultry & Hatchery Federation, joint convention; Springfield Armory, Springfield; sec., IFA, Dean M. Clark, 141 W. Jackson Blvd., Chicago 4; sec., IPHF, Aubrey Harless, Shelbyville, Ill.

Nov. 2-3—Kansas Poultry Assn.; Broadview Hotel, Wichita; sec., Harry J. Reed, Box 663, Manhattan.

Nov. 16-17—Missouri Poultry Improvement Assn.; Hotel Continental, Kansas City; sec., E. M. Funk, Columbia, Missouri.

1961

Jan. 12-13—Michigan Feed & Grain Dealers Assn.; Michigan State University, Kellogg Center; sec., Nevel Pearson, P.O. Box 472, East Lansing.

Jan. 13—South Carolina Poultry Festival; Batesburg - Leesville; sec., W. E. Sanders, Batesburg.

Joins Dairy Institute

SACRAMENTO—John Gilmore has joined the staff of the Dairy Institute of California, according to Clarence Michel, president. Mr. Gilmore was formerly with the California Hay, Grain & Feed Dealers Assn. He had served as secretary-manager since 1953.

Spencer Cowan Harold Poor

Chick Breeding Firm Reports Staff Changes

KIRKLAND, WASH.—Two staff changes have been announced by Gerald Cruea, general manager of Heisdorf & Nelson Farms, Inc. Spencer Cowan has been named eastern franchise representative, replacing Harold Poor, who is being transferred to the main office in Kirkland.

Mr. Cowan, who joined the H&N staff in 1957, has been customer service representative in the state of Washington. A native of Alabama, he attended Georgia Tech and has been associated with the poultry industry for the past 17 years in feed sales and as commercial poultryman before joining H&N. He will headquarter temporarily out of Heisdorf & Nelson Farms' Warsaw, Ind., branch.

Mr. Poor, a graduate of Washington State University, has served as eastern franchise representative since 1957. Prior to that time, he was a member of the H&N customer service staff at Riverside, Cal.

Mr. Poor will assume the duties of H&N's customer service representative in Washington.

Cattle Feeders Urge Two-Price Wheat Plan

MOSES LAKE, WASH.—Washington's cattle feeders say they would use large quantities of wheat if they could buy it in the open market.

At their annual meeting here the feeders urged a two-price plan for wheat, pointing out it is difficult for them to compete in cattle feeding when most grains are subsidized by the government.

The Washington Cattle Feeders Assn. asked for a plan whereby wheat going into human consumption channels would be pegged at a support price with the rest going for feed and export at open market prices.

GIVE YOUR FERTILIZER CUSTOMERS WHAT They WANT

. . . A GUARANTEED EVEN, ACCURATE SPREAD — FULL WIDTH, NO SKIPS

SPREAD IS CHECKED THE FULL WIDTH BY ACTUAL WEIGHT

The Simonsen spreader is not an adaptation of a lime spreader. It is designed to spread high analysis fertilizers accurately and evenly, down to 75 lbs. per acre. Superb performance results in positive customer satisfaction, and unequalled maintenance-free operation. Leasing plans available.

GET THE TROUBLE-FREE FEATURES YOU WANT

- Non-Corroding stainless steel at all critical points—apron, metering gate and guides, take-up bolts, drive chains.
- All-weather wheel drive assembly.
- Hydraulic fan drive.
- Outside compartment door hinges.
- Simple adjustment for spreading rate.
- Rubber shock absorbers on hoods.

WRITE, WIRE OR PHONE COLLECT for further information about the R710, plus a full line of other Simonsen bulk fertilizer bodies and the new Simonsen Feedilizer (a dual-purpose bulk feed and bulk fertilizer body).

SIMONSEN ALSO MAKES A FULL LINE OF BULK FEED BODIES, COMBINATION BULK FEED AND SACK BODIES, AND UNLOADERS TO FIT YOUR PRESENT TRUCK BODY.

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DEPT. FS QUIMBY, IOWA PHONE 72

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✓ WANT ADS
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weekly...only in
FEEDSTUFFS

CONFERENCE

(Continued from page 16)

be designed for the sheepman's benefit, Dr. Jordan observed.

If a farmer follows the practice of early weaning—a system which enables him to intensify his sheep production program—it is "an absolute essential" to creep feed the lamb, according to Dr. Jordan. This is true regardless of how good the pasture may be.

Research at Minnesota, Dr. Jordan continued, indicates that it is far more economical to creep feed the lamb and feed no grain to the ewe than to feed grain to the ewe or to both the ewe and the lamb. It may be noted that there is a 70-75% increase in gain from creep feeding the lambs as compared to gains of lambs not creep fed.

Dr. Jordan said that pelleting increases creep feed consumption after about the first two weeks, but during the first two weeks it appears to have no beneficial effect in increasing feed consumption.

An ideal creep feed, he said, appears to be one that has the following ingredients and properties: (1) Relatively high in soybean meal (10-20%), which is highly palatable. (2) Properly ground—not extremely fine. (3) Contains an antibiotic (10 mg. per head daily) to minimize intestinal disorder, prevent enterotoxemia and increase gains. (4) Has sufficient vitamins A and D and trace minerals. (5) Is properly mixed. (6) Contains at least 1-2% salt—this increases water consumption and will reduce incidence of urinary calculi. (7) Is economical in cost of material and labor to feed it.

Dr. Jordan mentioned that he had obtained good results with the new antibiotic oleandomycin.

NUTRITION EXPERIMENTS WITH CATTLE AND LAMBS—Dr. O. O. Thomas and associates reported on a number of current Montana State studies with cattle and lambs.

Diallyldiethylstilbestrol in Steer Rations—Dr. O. O. Thomas of Montana State reported on a study of the effect of 3, 3' diallyldiethylstilbestrol (DAS) in rations for steers wintered on the range and in subsequent summer grazing and feedlot trials and in feedlot rations for heifers.

Two trials were conducted to determine the effect of adding DAS in various feeding programs. In the first trial, yearling steers grazed on range gained 20 lb. more when DAS was added to the 2 lb. of supplemental feed. On crested wheatgrass pasture in the summer, steers gained the most when stilbestrol was added. In the feedlot phase, 25 mg. of DAS plus 2 gm. of dynafac or 10 mg. of stilbestrol increased gains of steers the greatest.

In the second trial, yearling heifers were fed 0, 15, 20 or 25 mg. of DAS or 10 mg. of stilbestrol. Heifers gained the most when fed the 20 mg. level of diallyl.

Enzyme in a High-Barley Cattle Fattening Ration—Dr. Thomas reported on a study of the use of agrozyme in fattening rations consisting of primarily barley. Three levels were used in steer feeding trials—.0025, .00375 and .0075 lb. In addition to a full feed of a concentrate mixture of barley, dried molasses, beet pulp, wheat mixed feed and dehydrated alfalfa pellets, the steers received a protein supplement pellet which contained the enzyme.

The best gains and feed efficiency were shown with the middle level of Agrozyme. The trial extended from April to October. Steers fed .00375 lb. Agrozyme during the trial gained 28 lb. more than the control steers for a 7% increase in gain. Steers fed the .0025 level gained 18 lb. more for a 4.4% increase in gain. The highest level showed a daily gain averaging below that of the controls.

Protein and Phosphorus Supplements for Cows Wintered on Native Range—Dr. Thomas said that in this study cows were fed a supplemental pellet containing 20, 30 or 40% protein; phosphorus was added to provide 1% additional phosphorus. Dicalcium phosphate was used as the phosphorus supplement.

It was noted that there was a tendency for more gain or less loss on the higher protein levels. Calf weaning weights have been higher from cows getting higher phosphorus levels.

Concentrate-Roughage Ratios in Completely Pelleted or Mixed Hay and Grain Rations for Fattening Lambs—Hay percentages in this trial were 65, 50, 35 and 65-50-35 (changed with successive periods in the last instance). It was noted that in the ground hay and grain ration, gains were a little greater with lower levels of hay. Also, wiith the pellets, the animals gained most as level of hay was decreased.

Tranquilizer and Stilbestrol Implants for Fattening Heavy Lambs—A trial was conducted to learn the value of a tranquilizer implant (trifluomeprazine) and a stilbestrol implant in stimulating gains of heavy lambs.

There were significant differences in gains among the lots of lambs. The tranquilizer implant gave about a .05 lb. increase in gain, and the

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1. Entries will be judged on the basis of sincerity and aptness of thought.
2. By entering, the entrants agree that the decisions of the judges selected by Prater Pulverizer Company shall be final and binding. Entries will be impartially judged by a panel of qualified experts.
3. No entries will be returned and all entries become the property of Prater Pulverizer Company.
4. Contest closes midnight May 10, 1960; winners will be notified by mail or in person about June 10, 1960.
5. In case of ties, tied entrants will be required to submit an additional 25 words on the subject of "GOOD GRINDING AND MIXING EQUIPMENT Does Make a Difference."
6. Entries shall be limited to persons with operating or supervising experience in Grinding, Mixing, or both, who are residents of the United States. Employees of Prater Pulverizer Company, its advertising agency, and members of their families are not eligible. Only one entry per person will be accepted. Only one prize will be awarded to any one family.
7. Contest is subject to all Federal, State, and local regulations. Taxes, if any, are not included in the prizes.

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stilbestrol implant added about .1 lb. in gain.

Wintering Tests—Dr. Thomas also reported briefly on wintering tests with heifers in which zinc bacitracin gave a boost in gains.

Answering questions on the various studies, Dr. Thomas said that a response is generally shown with stilbestrol but that when estrogenic activity of hay is high, there may be no response. The same situation exists for diallyl sometimes, he observed.

Regarding pellets for lambs, he said, there has been less difference in results this year than in previous tests, and improvements have been less than in some other studies.

PIGS AND PELLETS—An extensive report on research on pelleted swine feeds, with particular reference to barley rations, was presented by Dr. W. E. Dinusson of North Dakota Agricultural College.

In summarizing all the experiments on pelleting of rations for growing-fattening swine since 1950 at the North Dakota station, it was found that pelleting resulted in about an 8% faster gain on 16% less feed. This included barley, oat, hulled oat and corn rations. Pelleting of corn or hulled oat rations has not resulted in much advantage in rate of gain. So the average increase in rate of gain for barley and oat rations is about 10-12%. There is a saving of 15 to 16% in feed when barley or oat rations are pelleted.

Dr. Dinusson cited research indicating that the primary advantage of pelleting results from change in physical form, which increases palatability and reduces bulk. This, he said, permits pigs to eat on the basis of energy level and consequently faster and more efficiently. It was shown that if pellets crumble before being fed, the major advantage is lost.

In discussing protein supplementation, Dr. Dinusson noted that considerably less protein need be added to barley rations than to corn rations, and quality of protein is proportionately more important. Barley protein, as well as the protein in most other cereal grains, is deficient in lysine, and every effort should be made to select protein supplements high in lysine.

If blood meal and meat scraps are of good quality, they are the supplements of choice, he said, but variations in ability to provide amino acids have been noted. If the animal proteins are not good, one should use soybean meal because it is of uniform quality, said Dr. Dinusson.

He discussed his work on lysine supplementations of barley rations, noting that additions of lysine have resulted in increases in gains ranging from 10 to 99%, depending on type of rations used. Feed savings ranged from 7 to 28%. Increases in gains were greatest when barley alone was used. Lysine additions gave responses when various protein sources were used, and it was indicated that lysine in the various ingredients apparently is not all available to the pig.

Dr. Dinusson said he was trying to determine how low lysine must be in price to make it economical to add it to the feeds. Preliminary findings indicate that $3 lb. may be this price.

LEVEL OF FAT AND WHEAT MIXED FEED IN PELLETED SWINE RATIONS—John Marchello

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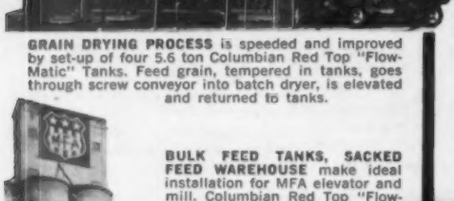

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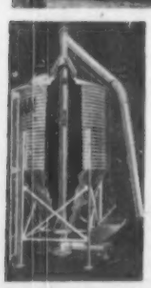

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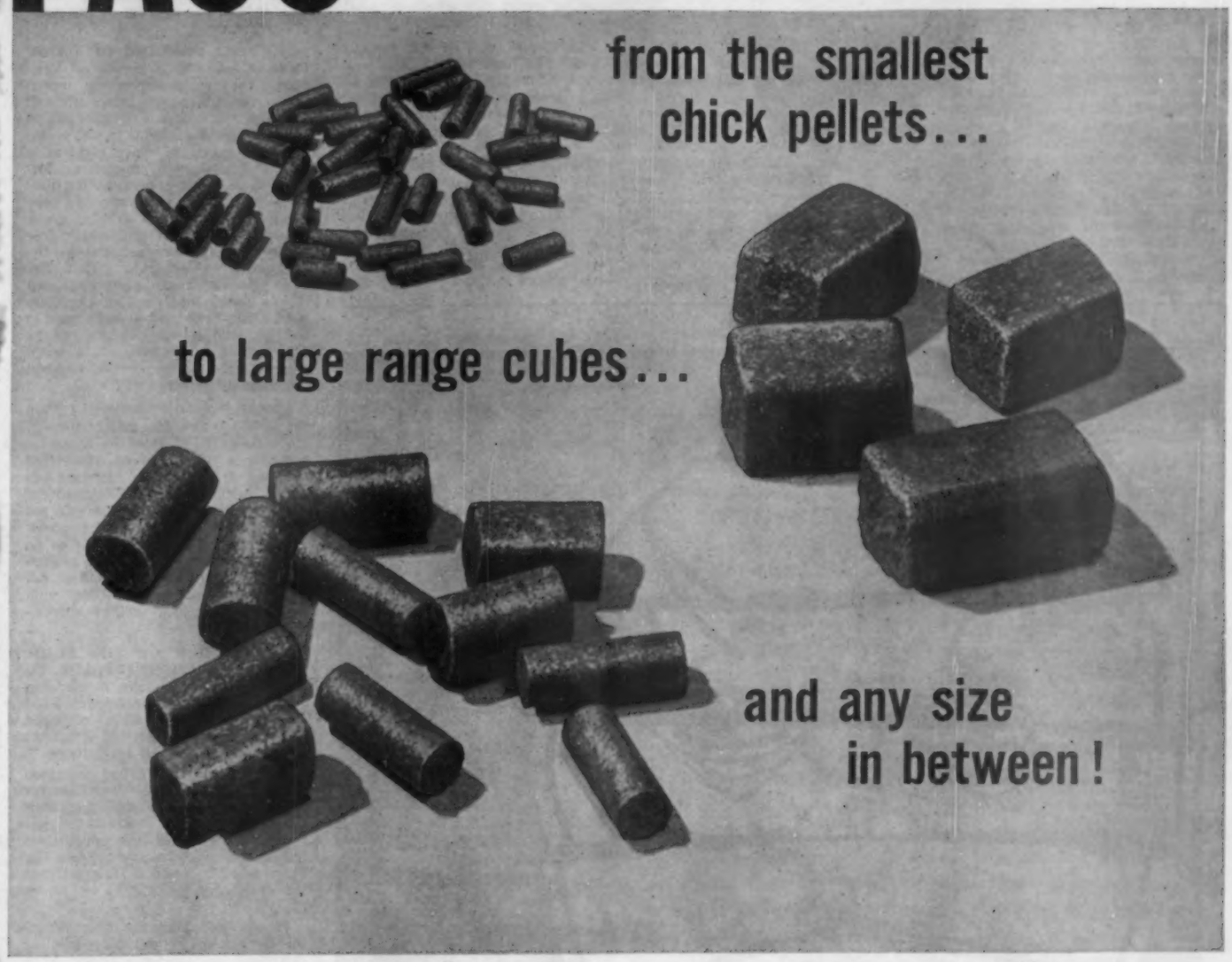

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of Montana State reported on trials conducted to determine the effects of inclusion of fat and/or wheat mixed feed in pelleted rations for growing and finishing swine. Barley was the grain source used in the feeds. Six rations were used in each of two trials. The treatments included 0, 25 and 50% wheat mixed feed with and without 2.5% added animal fat. A light and heavy group of hogs was assigned to each ration.

In trial one, fat increased gains in heavy groups, but in trial two no increased gains were apparent. In both trials, wheat mixed feed added to the rations resulted in slower gains. Feed efficiency was improved when fat was present. Wheat mixed feed gave decreased efficiency in one trial and inconsistent results in the second. Inclusion of fat increased cost of gain. Increased cost of gains resulted from addition of wheat mixed feed in one trial but gave the cheapest gains in the second trial.

Carcass data also were presented.

Mr. Marchello said the test indicated that there might be value in use of wheat mixed feed if a premium could be obtained for a better carcass.

MUSTARD AND RAPE SEED OIL MEAL—Dr. Kenneth Goering of Montana State told of continuing research on these possible protein sources. Last year, he noted, a preliminary report was presented showing that it was possible to remove the impalatable material from mustard by enzyme treatment and that although this same treatment brought some improvement in rape seed meal, it did not equal mustard in feeding value. This was assumed to be due either to amino acid imbalance or toxic factors remaining in the rape seed meal.

Subsequent work showed that rape seed meal is much lower than mustard meal in methionine, lysine and tryptophan. However, blends of mustard and rape seed meal can be made to give amino acid composition equal to soybean meal. A number of blends were made and fed to rats. These tests indicate that toxic factors still are present in enzyme-treated rape seed meal although it appears to be improved by the treatment. In all cases, it was inferior to mustard meal. A combination of mustard and soybean meal gave better results than straight soy.

Dr. Goering said that with added valine, mustard probably would be as good as soy. This is being tested now. He noted that mustard meal is very high in methionine.

SELENIUM AND NUTRITIONAL MUSCULAR DYSTROPHY—Dr. Stuart Young, of the Montana Veterinary Research Laboratory, reviewed available information on selenium and vitamin E in this field, noting the complex nature of the problem and the still not clear picture.

He noted for one thing that while selenium has prevented muscular dystrophy, in some cases vitamin E supplementation has not been effective or has been just partially protective. Vitamin E supplements have been useful but have never eradicated the condition, he commented.

Scientists, he said, may be dealing with one pathological disease with several causes. There may be different causative factors, perhaps related.

Dr. Young went on to say that in early stages of investigation, it is well to emphasize the hazards that accompany addition of selenium to feeds or its administration by tablet or injection. The margin of tolerance is narrow.

MINERAL FEEDING OF DAIRY CATTLE—Dr. E. P. Smith of Montana State gave a progress report on a comparison of three mineral supplementation plans upon blood calcium and phosphorus in dairy cattle. One group of cows receives a free choice of high phosphorus, low calcium mineral supplement fed previously. A second group receives bone meal free choice, and a third group receives no mineral supplement free choice but receives mineral in the commercial concentrate ration. Results were not immediately clear, but it was noted that most of the cows not having heat periods have been in the no-mineral-supplement group. There were no differences in blood serum levels, and production was not immediately affected.

RESPONSE OF DAIRY COWS TO SHADES IN PASTURE—D. Kaye Bergman of Montana State reported on a study to determine whether or not, in the Montana climate, shades should be provided for dairy cattle on pastures which do not have natural shade. From the experiment, he said, there seems to be no advantage in erecting shades in pastures. The summer climate does not seem extreme enough to affect milk production or body weight appreciably.

APPLICATION OF THE FOOD, DRUG AND COSMETIC ACT TO ANIMAL FEEDS—John A. Kedzior, chief inspector, Seattle district, Food and Drug Administration, reviewed the food and drug law as it affects the feed industry and agriculture.

Mr. Kedzior also called attention to the problem where "provisions for rule making outdistance provisions for rule enforcing." The need for narrowing this gap has been emphasized by several recent actions taken by FDA, said Mr. Kedzior. He mentioned the cranberry incident as an example.

He also noted, among other things, the importance of following labeling directions on products under FDA control.

"When a society adopts the philosophy that farmers should be allowed to use poisons in the production of meat, milk and eggs for the technological benefits that flow from their use, it is essential that appropriate safeguards be placed around the practice," the inspector said. "Certainly one safeguard that must be observed is that the hundreds of thousands of growers shall administer the chemicals to properly avoid poisoning the food supply."

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FOR SALE—60 SINGLE BURNER FLUEless type brooder stoves, 1,000 chick capacity. In good condition. Only one year old. Also Rowe vending machine, 1957 model, 100 dozen capacity. Somerville Poultry Farms Co., Box 309, Somerville, N. J.

WE HAVE CHAMPION MILL AND MIXER units, Gehl portables, Daffin feedmobile, Iowa portable and a number of straight grinder units for sale at a reasonable price. Used stationary mill equipment on hand for sale. See Moeers Mfg. Co. at Windom, Minn., for all of your mobile and stationary mill equipment. Phone TEmple 1-3223.

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FOR SALE — COMPLETE JAY BEE 20", 5-W hammermill with switches and ammeter, including 200 h.p. Crocker-Wheeler explosion and dust proof motor, 3 phase, 440 volt, 3,600 RPM. Complete "Verti Cool" alfalfa meal cooler, less refrigerating system. Dismantled. Illinois automatic stocker, dismantled. Type LF, 6'x10'8". Schoeneck Farms, Inc., Nazareth, Pa.

100 H.P. ACE SPROUT-WALDRON PELlet mill, complete with motor, coolers, pneu-vac air system; 60 H.P. Sprout-Waldron pellet mill and cooler; 50 H.P. heavy duty California pellet mill; 5-ton S. Howes Eureka horizontal mixer, with silent chain drive and 40 H.P. motor. Call or write J. E. Hagan Mill Machinery, P. O. Box 574, Jefferson City, Mo.; Phone 6-2197.

J & N (PEL-O-MATIC) PELLET MILL; Sprout-Waldron 6x36 crumble roll; Kleen mix molasses mixer; Davis 18" corn cutter; 9x18 Great Western 2-pair high roller mill; 9x30 N & M double roller mill; new style K-160 Draver chemical feeder; No. 11 S. Howes scalper; new No. 104 18" Sprout-Waldron ear corn crusher; 800 bu. pitless sheller; Savage feeders; 24" O. B. Wise hammermill with 40 H.P. motor; used and new conveyor; used pulleys; Bibrox bag packer; new 2,000 lb. horizontal mixer; 4'x13'6" bin, including 60° hopper; model "H" Jay Bee hammer mill; Thor balancer; 6" Clipper belt lacer; used and new motors, switches and starters; new 48" 16 gal. galvanized collector. General Mill Equipment Co., 2021 Pennsylvania, Kansas City, Mo.

MACHINERY WANTED

ALL KINDS OF GOOD USED GRAIN processing machinery. E. H. Beer & Co., Inc., Baltimore 24, Md.

WANTED—ONE (3-TON) NO. 548 HOWES Eureka mixer, without motor. O. W. Meyer, Napoleon, Ohio.

WANTED—ARID AIRE MODEL C DRYER. Write Box 306, Troy, Ohio; Phone Federal 9-6911.

WANTED TO BUY — RICHARDSON scales, bag closing machines and other good mill, feed and elevator equipment. J. E. Hagan Mill Machinery, Jefferson City, Mo.

BUSINESS OPPORTUNITIES

FOR SALE — FEED, SEED AND FERtilizer business with mill fully equipped in prosperous central Minnesota community. Terms. Address Ad No. 5651, Feedstuffs, Minneapolis 40, Minn.

FOR SALE—CENTRAL OHIO, SEVERAL modern grain elevators and feed mills all with complete custom grinding and mixing equipment. C. T. Hartman, 1024 Beechview Drive, Worthington, Ohio; Byron C. Jilek, Realtor.

FOR SALE—FEEDMILL—CENTRAL WISconsin. Water power operated. Turbine generates up to 90 H.P. Grain storage capacity 2,000 bu. plus. Complete basic custom milling equipment. Reason for selling—retiring. Address Ad No. 5639, Feedstuffs, Minneapolis 40, Minn.

OPPORTUNITY SALE—VINELAND, N. J. Available immediately modern efficient feed mill on railroad siding. Facilities for bulk receiving and shipping. Capacity 650 tons mash and pellets per week. Tax loss available. Contact I. Palkier, 565 North Valley Avenue, Vineland, N. J.; OXford 2-8204.

FOR SALE — ALFALFA MILL LOCATED in finest alfalfa area. McGeehee drum modified to get 3 tons per hour. California pellet mill (Century) used two seasons, gas generator for gas storage. Complete plant with field equipment, located on railroad siding. Contact Dan McDonald, Clare, Mich.

FOR SALE—FEED PLANT IN IOWA, APproximately 100 miles from Kansas City, Omaha or Des Moines. Excellent building with 15,000 feet of floor space—railroad siding with dock—also 40 ft. truck dock —nice modern office—all mixing and pelleting equipment in excellent condition. Will sell with or without inventory. Reason for selling is personal. Possession according to purchaser's desire. Address Ad No. 5668, Feedstuffs, Minneapolis 40, Minn.

Read CAPITAL COMMENT in FEEDSTUFFS

The Consulting Engineer

EDITOR'S NOTE: The week of Feb. 21-27 has been designated as American Engineers Week. In this connection, the following report on consulting engineers and their services was prepared. Representing the consulting engineering profession, J. Henry Schipke, Henry Schipke & Associates, Minneapolis, provided the information.

What and who is a consulting engineer? The Consulting Engineers' Council, headquartered at Springfield, Ill., opens its new brochure called "The Story of America's Consulting Engineering Profession" with the following definition:

"A consulting engineer is a professional engineer who offers his services on a fee basis and who has no commercial affiliation to bias him. He is trained in the expert and judicious application of science and technology to the solution of engineering problems, and is one who, through special application, broad experience, proven ability and professional integrity, provides his client with technical advice of the highest quality in the fields where he practices as an expert."

A consulting engineer is a professional engineer registered or licensed to practice in one or more states. There are state laws requiring mandatory registration of persons practicing architecture, professional engineering and land surveying. These laws are to safeguard life, health and property.

A consulting engineer is one person. He is in many cases a man who has specialized in one field or allied fields, and consequently has studied or worked in this chosen field to become an authority on some phase of engineering. He may have his own firm or he may be a member of a firm composed of numerous professional engineers embracing many fields of engineering. In either case he is usually supported by other personnel who, by work, education, experience and examination, can become professionals. The small consulting firm or the individual consultant will have working arrangements with other consulting engineers and/or architects who will be called upon for special knowledge when needed.

Provides Counsel

The consulting engineer provides counsel and assistance from the preliminary planning to the final, operational stage. A brief list of the services or work available to the client is as follows:

1. Preliminary Analysis: He can study and report on existing plant facilities or operating procedures to determine ways of increasing production or operating efficiency.

2. Research: He can conduct or guide applied basic research.

3. Cost Estimating: He can determine estimated cost of the facilities and their operation.

4. Site Selection: He can establish site specifications as a guide for the site selection and inspect them for adequacy.

5. Detailed Working Plans and Specifications: He prepares complete plans, specifications and contract documents necessary for the completion of a project—a building addition, equipment layout or a complete new plant. He assists in securing bid proposals and aids in their evaluation.

6. Supervision: He will furnish engineering supervision and inspection during the construction progress and equipment installation.

7. Operation: He can assist operating personnel in placing the plant in operation.

The firm with no engineering staff may use the consulting engineer. If

the owner has an engineering staff, he may use the consulting engineer as a supplement to that staff.

How to Select Him

In selecting a consulting engineer, qualifications to be considered include the following: (1) An evaluation of his technical qualifications; (2) his reputation with present of prior clients; (3) reputation and standing in his professional association; (4) that he is a registered professional engineer; (5) experience in projects similar to the one under consideration; (6) availability and mobility in relation to job being considered, and (7) knowledge of the particular equipment and/or process and services involved in the project.

To achieve the best results, it is imperative that there be a good working relationship between the client and the engineer. To do this it should be the responsibility of "one" man within the client's organization to act as the communication system between the client and the consulting engineer.

How to Pay

The consulting engineer is reimbursed for his services on the basis of a professional fee determined by negotiation, not by competitive bidding. There are several ways on which the fee for a particular job may be based. They are: (1) A percentage of the cost of the engineered project; (2) a fixed fee; (3) a fixed fee plus expenses accrued for the project; (4) straight hourly rates, plus expenses accrued on the project, and (5) a retainer for continuing consulting services.

The type of engineering project involved may rule out some of the above. For example, an analysis job would rule out a percentage fee since no construction may be contemplated, or a fixed fee may be out of the picture unless a definite scope of work can be outlined, and should it be required to go outside these limits the fee would have to be re-evaluated to include these new limits.

Value received from the service will be greater than its amount. This includes: (a) Savings in construction and equipment costs by competitive bidding; (b) reducing plant operating costs; (c) reduction in capital cost, and (d) eliminating of hiring and training technical personnel for short durations.

Nutrition Research Reports Feature of Distillers Meeting

CINCINNATI — The program for the 15th Distillers Feed Conference will feature research reports about new developments in animal and poultry nutrition. The conference is sponsored by the Distillers Feed Research Council and will be held March 23 at the Sheraton-Gibson Hotel, Cincinnati, Ohio.

The program speakers announced by Dr. L. E. Carpenter, executive director of the Distillers Feed Research Council, will talk about nutritional advances and their application to the feedlot for all classes of livestock and poultry.

The speakers for the morning session will include: W. E. Glennon, president, American Feed Manufacturers Assn., talking on "The Food Additive Amendment and Its Importance to the Feed Industry;" Dr. Robert Wanner and Dr. C. M. McCay, Cornell University, "A Summary of Growth and Reproduction Studies with Dogs Fed Diets Containing Corn Distillers Dried Solubles;" Dr. Robert Grainger, J. W. Stroud and N. W. Bradley, University of Kentucky, "The Potential of Fat as an Energy Source for Fattening Beef Cattle and Sheep;" Dr. Henry Fuller, University of Georgia, "Vitamin B_{12} Requirement of Breeder Hens," and Dr. J. K. Loosli, Cornell University, "The Value of Different Protein Supplements for Milk Production."

The afternoon speakers will be: Dr. W. M. Beeson, Purdue University, "Mineral Interrelationships in Swine Nutrition;" Dr. M. L. Scott, Cornell University, "Recent Studies on Organic and Inorganic Unidentified Chick Growth Factors;" Dr. J. R. Couch, Texas A&M College, "Progress Report—Isolation of an Unidentified Factor from Corn Distillers Dried Solubles;" Dr. L. D. Matterson and Dr. L. M. Potter, University of Connecticut, "Energy Measurements of Poultry Feedstuffs," and Dr. D. V. Catron, Iowa State University, "Factors Influencing Feed Intake of Swine."

The formal program will be followed by a panel discussion moderated by Dr. E. I. Robertson, John W. Eshelman & Sons, Lancaster, Pa.

George M. Brinker, president of the Distillers Feed Research Council will welcome guests at the conference.

FEED CONTROL COMMENT

By BRUCE POUNDSTONE

Secretary, Association of American Feed Control Officials
Kentucky Agricultural Experiment Station, Lexington

Ingredient Lists Not Needed in Labeling Straight Products

In the interest of simplification, it it noted that wherever a company has been showing an ingredient under the chemical guarantee in an ingredient list on a straight product tag, this is not strictly necessary. Many tags for such products give only the name of the product and a chemical guarantee. In some instances, however, an additional ingredient statement is given. This is not necessary.

In the case of wheat by-products, for example, Parks Yeats of Oklahoma points out that a tag for "wheat bran" need list this only once on the tag. This is in the brand name. An ingredient list is superfluous.

This is not to say there may not be exceptions. As a general rule, this can be followed in labeling most ingredients on straight products.

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Where to Get The Answer

Recently a large number of feed officials in the U.S. received a request from a consultant inquiring as to the use of a mineral ingredient in feeds for poultry and swine. This request, on a state by state basis, asked for regulations and requirements that would or would not permit the use of this ingredient.

Judging from the number of copies of letters sent to me, at least two dozen states were contacted and as many replies written. All of them gave essentially the same answer. This could have been avoided if the person making inquiry had addressed one letter to the mineral investigator from the Association of American Feed Control Officials.

Anyone having a question with regard to general use of products of this nature can usually get the answer by writing to the responsible person. The list in the front (page 8) of the Association of American Feed Control Officials 1960 annual publication gives these. Most firms desiring this information now have a copy of this handbook and reference to page 8 would supply the name of the person involved. Addresses begin on page 77 of the same book.

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Salmonella

A new investigator was created this year entitled, "Bacteriological Control." This was done to centralize questions relating to contamination of a bacteriological character. During the past few years, salmonella has come to the fore as a contaminate that may be causing trouble. Allen Baker of the state of Washington, the investigator in this area, will work with investigators in the various fields involved, such as marine products and animal products, and with interested industry groups.

USDA Offers to Buy More Banned Poultry

WASHINGTON—The U.S. Department of Agriculture has offered to purchase an additional 2,042,900 lb. of frozen ready-to-cook poultry which has been treated with diethylstilbestrol, subject to vendors' acceptance.

This announcement brings the total stilbestrol-treated poultry which USDA has offered to buy to approximately 5,868,600 lb. The purchases are being made according to the purchase program announced Dec. 11, 1959.

Contracts are being mailed to the persons or firms who offered the poultry and will become valid when they are signed and returned to the Poultry Division, Agricultural Marketing Service, U.S. Department of Agriculture, Washington 25, D.C.

Prices of the offers included in this announcement ranged from 28.9 to 45¢ lb. and averaged 43.62¢. Factors which account for the wide price range include variation in prices of live poultry, date of processing, processing costs, weights, quality, services performed and storage costs.

USDA is reviewing additional offerings postmarked no later than Jan. 31, which was the final offering date. Subsequent announcements of offers to purchase will be made.

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RICH IN VITAMIN D FOR FOOD FORTIFIED ANIMALS

The Weigh-Burro bulk scale is self-discharging, rugged, durable. Easy rolling wheels. Scale cap. 1000 lbs. Price only $295. Order by collect wire today.

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Fabricated with top quality material throughout, our units include the following features:

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- 32 Ft. Overall Length
- 8 Ft. Overall Width
- 10 Ft. 2 Inches Overall Height

TOTAL PRICE: F.O.B. Dallas, Texas, including Federal Excise Tax—$8,000.00

NOTE: Above trailers can be converted to pneumatic unloading for nominal extra charge.

Don't Wait! For further information, write, wire or call

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ECONOFERM offers a reliable source of unidentified growth factors to promote faster gains. It is rich in essential known ingredients, including 5 important vitamins. With Econoferm in your feed, you offer your customer, in moisture-resistant 50 lb. bags, a product that has all the benefits of dry fermentation solubles—and you have the LATEST scientific advances in your feed.

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Jefferson Appoints Two Sales Executives

HOUSTON, TEXAS — R. Harry Borden has been appointed district sales manager, Houston district, with headquarters in Houston, Texas, and Stanley W. Cairns has been named district sales manager for the Philadelphia district, with headquarters in New York City, according to Ralph E. Werley, Jr., sales manager, Jefferson Chemical Co., Inc., Houston.

Mr. Borden had been salesman for the firm in the southern region since 1957. Prior to joining the company, he was salesman and assistant secretary for Dixie Chemical Co. He is a graduate of Baylor University and holds a B.A. degree in chemistry.

Mr. Cairns has been with the company since 1952 as a salesman in New York. He is a graduate of Princeton University, with a B.S. degree in chemical engineering. He also studied business administration at Alexander Hamilton Institute.

The switchboard operator in a swank New York hotel received a call at a little past two in the morning from a somewhat inebriated man who wanted to know what time the hotel bar opened.

"At 9 a.m., sir," she replied.

At 3:30 a.m. the phone rang again and the same man, this time obviously feeling no pain, asked the same question.

"Not until 9 a.m.," she said a second time.

At 5:15 a.m. the switchboard operator received still another call from the same guy, now completely stoned. Once again he asked the same question.

More than a little irritated, she snapped, "I told you, sir, you'll have to wait until 9 a.m. to get in the bar."

"Get in!" croaked the drunk, "I want to get out of the danged place!"

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Said the mountaineer: "I shore wish I had my wife back."

Friend: "Where is she?"

Mountaineer: "I sold her for a jug of mountain dew."

Friend: "I reckon you're beginning to miss her."

Mountaineer: "Nope, I'm thirsty again."

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"Quick, quick!" screamed the small boy, rushing into the drugstore, "My Pop's hanging by his pants leg from a barbed wire fence!"

"What do you need?" asked the druggist. "Is he hurt or do you need help in getting him down?"

"No, no!" shouted the lad. "Just gimme another roll of film for my camera."

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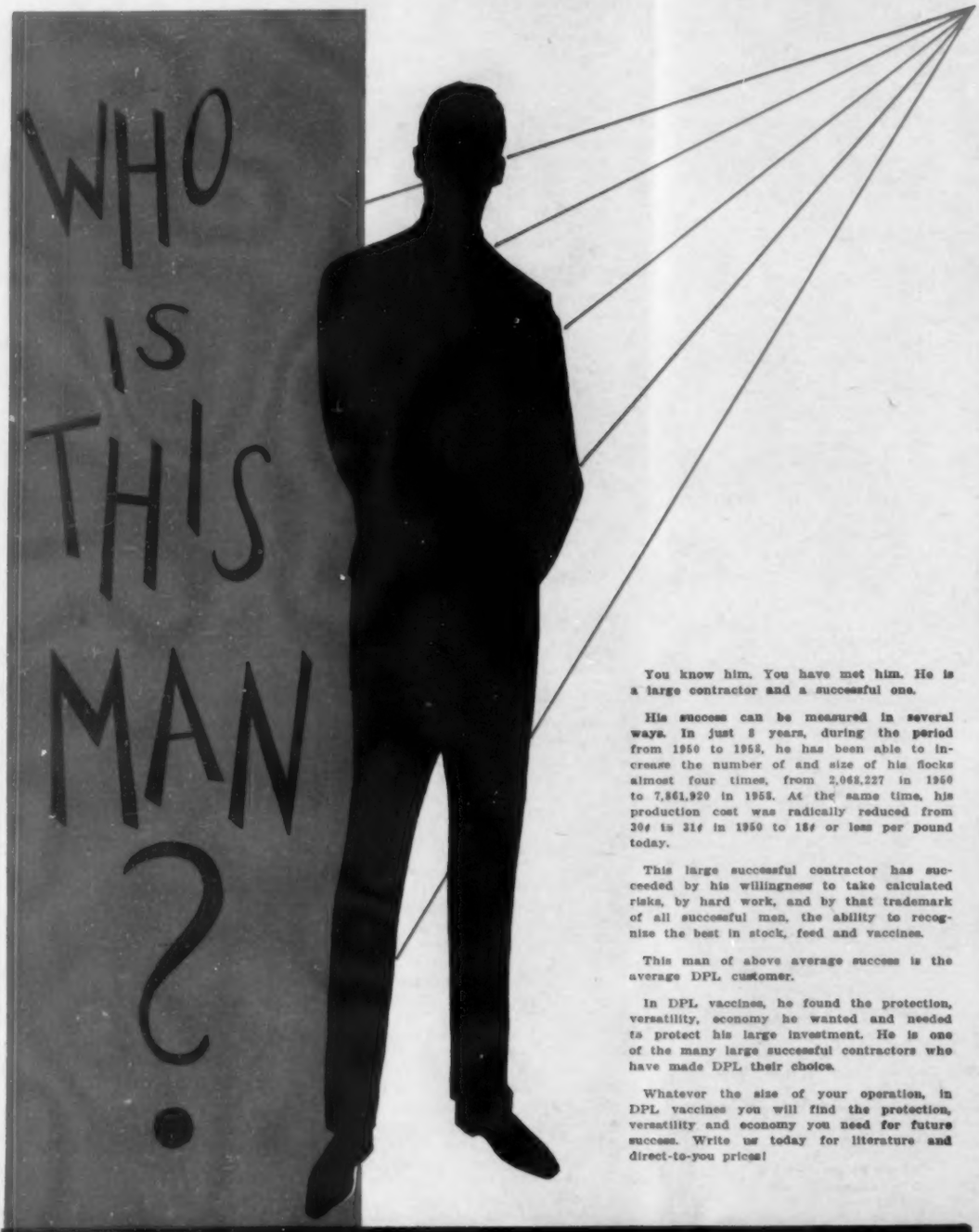
Two men were making their first air trip. When the plane landed in St. Louis to refuel, a little red truck rushed out to it. The same thing happened in Cleveland. At Albany, after witnessing the same thing, one man remarked, "This p l a n e sure makes good time."

"Yes," the other said, "and that little red truck isn't doing so bad either."



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His success can be measured in several ways. In just 8 years, during the period from 1950 to 1958, he has been able to increase the number of and size of his flocks almost four times, from 2,068,227 in 1950 to 7,861,920 in 1958. At the same time, his production cost was radically reduced from 30¢ to 31¢ in 1950 to 18¢ or less per pound today.

This large successful contractor has succeeded by his willingness to take calculated risks, by hard work, and by that trademark of all successful men, the ability to recognize the best in stock, feed and vaccines.

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In DPL vaccines, he found the protection, versatility, economy he wanted and needed to protect his large investment. He is one of the many large successful contractors who have made DPL their choice.

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NFIA

(Continued from page 6)

ed soybean oil meal and 2,500 tons of bulk solvent cottonseed oil meal. Food, Drug & Cosmetic Act for the source compounds listed in the Federal Register because these compounds in common commercial practice are not "food additives" as defined by the act for the following reasons:

1. The compounds proposed are generally recognized as safe among experts qualified by scientific training and experience to evaluate their safety because they have been adequately shown by scientific procedures to be safe under the conditions of their intended use.

2. These compounds are officially recognized as "suitable ingredients in animal feeds" by the 1960 Official Publication of the Association of American Feed Control Officials.

3. The elemental nutrient levels from the source compounds added to the total ration in animal feeds used in common commercial practice are generally recognized as safe levels.

4. These source compounds and elemental nutrient levels in common commercial practice have been widely and commonly used in animal feeds long prior to Jan. 1, 1958.

5. Among experts qualified by scientific training and experience to evaluate their safety, these compounds in use long prior to Jan. 1, 1958, were generally recognized to be safe under the conditions of intended use,

(a) based on scientific procedures, and
(b) based on common use in animal feeds.

6. There is no evidence, and there are no findings, as by law provided, that these source compounds are unsafe when fed at the levels commonly used in animal feeds.

Other Arguments

The association also submitted that the ingredients or source compounds named in the subject regulation are nutrients and not additives within the purview of the Food Additive Amendment and that the department should consider this distinction between substances used in animal feeds to the end that additives controlled by the Food Additive Amendment are separated by definition from nutrients commonly recognized as safe for use in animal feeds. Detailed references have been submitted by several association members.

Further arguments by NFIA indicated that the nutrients named by FDA have been used at significantly higher levels without deleterious effect upon the health of the animals fed. Use of these compounds at varying levels is required by the following circumstances:

A. Geographical differences in soil content of the mineral nutrients, e.g.:

1. In Florida the effect on copper requirement by molybdenum.
2. Cobalt deficiency in Florida, New England, Michigan and Wisconsin.
3. Iodine deficiency in the Great Lakes region.
4. Naturally occurring selenium.
5. Seasonal variations in nutrient content of grains and forages.
6. Varying management conditions:
   a. Dry lot vs. pasture feeding.
   b. Complete ration vs. free choice feeding.
7. Specie and strain differences in nutrient requirements.
8. Variation in physiological availability of the nutrient in the source compound, e.g., iron in iron oxide vs. iron in ferrous sulphate.
9. Variable mineral content of water supplies.
10. Instability of some source compounds.

In practice, nutrient levels set by regulation as maximum levels tend to become the minimum levels. This may be both uneconomical and unsafe. When tolerances are required by the law they are to be set on the basis of safety and not on value.

Regulation of nutrient levels by fixed percentages or conditions of use discourage initiative and stifle freedom of research. Restraint of competition results from this tendency toward regimentation and results in higher food costs, lower quality food, increased cost of production and eventual decrease in the total food supply.

RAIL RATE

(Continued from page 1)

general freight traffic committee for a public hearing. It is believed that such a hearing will be docketed for early in March.

Mr. Bressette is one of a number of representatives of eastern feed manufacturers, millers, shippers and poultry and livestock producers who initially presented their views on rail rate adjustments before the research committee at Chicago last July.

COMMODITIES

(Continued from page 1)

that support price levels for the other small grains will suffer this same reduction, even though USDA officials say they still defend the objective of a price support level for the other grains in relation to their feeding relationship to corn.

This all makes sense, although collected from different USDA sources —a lower level of support for corn, and little if any reduction in the dollars and cents price support for oats, barley, rye or grain sorghums.

This may confirm the comment of a USDA official that it is unlikely that there will be a reduction in the price support level for beans for the new crop.

The bean situation now consists of USDA re-seal policy after April 1, 1960. USDA has already announced a re-seal program for old crop feed grains and has failed to include an extension of the 1958 crop year re-seal for beans. It is improbable that USDA will later announce an extended re-seal of old crop beans amounting to about 13 million bu. at the farm level.

At this point, one may accurately cast the economics of the outlook out the window and look at the political factors involved. It must be assumed that USDA will continue to hold its old crop beans off the market at higher than open market prices—except in special storage situations—to maintain the price of beans.

Furthermore, looking at the entire crop planning prospects, it must be considered that USDA will attempt to hold down a further expansion of corn acreage next year by retaining an out-of-line relationship for the other small grains to corn to halt corn expansion and retain better crops of oats, barley, rye and grain sorghums.

USDA officials made an off-the-cuff statement to Feedstuffs this week indicating that the crop estimates of beans and grain sorghums are high. These officials cited the big disappearance of these crops this year against the stock position reports which indicate to them an overestimate of supply.

The outlook is that many soybean farmers are holding and will hold beans because of their failure to put them into the loan position.

On the opposite side of the coin is the price situation of the end products of beans.

Can high price soymeal carry a load of higher priced beans? The immediate answer is "no." Trade sources and USDA officials say there is plenty of high moisture corn which cannot qualify for the loan.

Yet, the price support activities of USDA for Jan. 31, 1960 show that corn loan impoundings are higher than a year ago. It has been a general belief that heavy supplies of higher moisture corn, ineligible for loan, would bite into the consumption of soybean meal as farmers would prefer to feed out high moisture ineligible loan corn rather than make out-of-the-pocket disbursements for protein supplement.

One may add up all these assumptions and make his own conclusions, but it eventually must be remembered that this is "leap year" and the nation selects a new president.

This administration is no different from its predecessors, and it must be expected to take surprising and tangential actions to firm up prices later this year—probably after the GOP convention in mid-summer.

As of this time, Richard Nixon, the front runner for the GOP, seems to adhere to the Benson farm philosophy. What may happen after and if he is nominated may be a much different thing.

A statistical item which may influence opinions of the probable levels of price support for the small feed grains is included in the eight point program of the farm law. One of these items is the willingness of the producer to keep crops in line with market outlets.

Here is the clincher—USDA says that significant drops in loan impoundings are found in grain sorghums, oats, flaxseed, barley and rye.

In view of the reported comments from responsible officials, this may mean that USDA will chop down the price support level for corn to the minimum authorized by law and maintain the current level of support for the other small grains.

It is also reported here that USDA will eventually be forced into some kind of an oil program through congressional pressure, since the current pile up of edible vegetable oil is the major market depressant.

USDA officials are believed to be still adamantly opposed to any oil donation program. In fact, where they can go with an oil donation program through the voluntary aid agencies in any substantial volume mystifies top government officials.

USDA might, of course, decide to take over the surplus oil stocks which are now building up.

All of this does not make economic sense, but this is a political year and politicians, being what they are—notwithstanding party affiliation—will react to their immediate advantage.

Previously in this report, this reporter saw a potential price stimulant to soybeans now held on the farm level.

At the USDA sales office, officials repeat their previous statement that soybean exports may amount to as much as 150 million bu. Trade sources discount this estimate saying that this forecast is based on over-lapping export figures.

But there must always be the comfort that the speculative interests which are now bearish on beans had previously been heatedly bullish on beans.

There is now a politician in this market. Take heed.

SHARES IN AMERICA—The story of America and its opportunities—how its citizens hold shares of stock in the nation and its freedoms—was told in an inspirational address at the Montana Nutrition Conference banquet by Samuel M. Golden, president of the Amburgo Co., Philadelphia. In illustrating the points of his talk, Mr. Golden told the story of his own life —born in Palestine, immigrating to America, growing up on the east side of New York, attending the National Farm School and eventually forming his own firm in 1932. Mr. Golden is shown here holding a container depicting the Constitution and Bill of Rights, one of the ingredients which go into the "Great American Melting Pot" and help make the country great.

EDITORIAL

(Continued from page 2)

simply give up and submit to unreasonable infringement on its economic life and, indeed, its business character. It has not only its own well-being to consider, but that of its conscientious scientists and other employees who have devoted their lives to study and application of agricultural science. It is not far-fetched to state that the industry is obligated to defend the very precepts that have made the U.S. the best fed nation on earth and thereby contributed material strength to the nation.

The only course open to the industry is to first convince itself to its very core of its most serious obligation to hold firm in its beliefs and its knowledge of what is right and proper. It must then vigorously meet each problem it faces in a direct and competent manner. If a congressman needs better information or calming down, he should be reasoned with, rebutted and corrected. If necessary, he should be reached through his constituents.

If label instructions are being ignored, the proper controls should be applied by industry wherever it is in its power to do so.

If an administrative move appears capricious, the industry should exert its arguments and pressure where it will do the most good. It must protect its right, and the right of all citizens to be heard and heeded when it can prove its position.

If the "faddists" get the play in the press, the press must be persuaded to tell the positive story of modern food production. The accusations and claims must be met point by point if necessary.

ABOVE ALL, THE DELANEY restrictions must go. A strong surge of rebellion is developing among farm groups, and the industry must apply its strength to help this protest reach those who legislate and administer.

If the Delaney dilemma cannot be solved through legislative action, supported by sound public opinion made aware of its own stake in the issue, then the industry must seek recourse through the courts of law. The industry is losing patience, but it must not let this influence its leaders to either abandon its position or weaken it by any ill-conceived actions. And it must not overlook the procedures of justice available to it in a democracy that wants to remain strong.

The FEED MARKET

PRICE QUOTATIONS, MARKET TRENDS
OF PRINCIPAL INGREDIENTS

NOTE: Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bulk, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

A AND D FEEDING OIL

Chicago: Demand fair; trend steady; supply ample; straight A feeding oil, with 10,000 units vitamin A per gram, 7@7¼¢ a million units of vitamin A, l.c.l., packed in 55-gal. drums, f.o.b. Chicago, drums included.

Denver: Demand fair; trend steady; supply ample; 2,250 A, 300 D 22¢ lb., f.o.b. Denver.

New York: Demand fair; trend steady; supply ample; 1,500 A, 300 D 16¢ lb.; 2,250 A, 300 D 17⅛¢ lb.

Boston: Demand slow; supply ample; 400 D, 3,000 A 21⅛¢ lb.; 300 D, 3,000 A 21¢; 300 D, 2,250 A 19⅛¢; 300 D, 1,500 A 18¢; 300 D, 750 A 16¢; 75 D, 750 A 15⅛¢.

Minneapolis: Demand fair; supply ample; 10,000 A 34⅛¢ lb.; 300 D, 2,250 A 18⅝¢ lb.; 300 D, 1,500 A 17⅛¢ lb.; 300 D, 750 A 16¢ lb.

ALFALFA MEAL

Philadelphia: Demand and supply fair; 17% dehydrated $68.50.

Kansas City: Demand slow; trend steady to weak; supply adequate; 17% dehydrated alfalfa, guaranteed 100,000 A on arrival, reground pellets $55 bulk, pellets $53@54 bulk; 18% dehydrated alfalfa, guaranteed 125,000 A on arrival, reground pellets $56@59 bulk; 20% dehydrated alfalfa, guaranteed 150,000 A on arrival, reground pellets $65; suncured alfalfa demand slow, ample supplies, 13% pellets $35@35.50 bulk, No. 1 ¼-in. $37.50@38, No. 2 ¼-in. $36.50, sacked.

Omaha: Demand fair; trend steady; supply ample; 17% dehydrated, 100,000 A units bulk pellets $51; sacked meal $56, Omaha.

Ft. Worth: Demand increasing; supply sufficient; sacked: dehydrated, 17%, 100,000 A $65.50@66.50 rail, $65 truck; suncured 13%, ¼-in. grind No. 1 $46 truck; 15% fine ground dry $48, with 2% fat added $50 rail or truck.

Chicago: Demand improved; trend steady to higher; supply moderate; 17% protein, dehydrated with 100,000 units vitamin A $59.50@61; 13% suncured $40.50@41.50.

St. Louis: Demand slow; trend steady; supply ample; suncured, 13% fine, sacked $44; dehydrated, 17%, 100,000 A pelletz, demand slow, trend steady, supply ample, bulk $57.

New Orleans: Demand fair; trend steady; supply adequate; 17% protein, 100,000 vitamin A, bulk $65@66, sacked $72@73.

Memphis: Demand fair; trend steady to lower; supply ample; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $60.50.

Denver: Demand fair; trend steady; supply ample; dehydrated $52, sacked meal; $56, bulk pellets.

Cincinnati: Demand fair; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $63@65.

Portland: Demand moderate; trend unchanged; supply ample; suncured, 15% $49; dehydrated $68.40.

Boston: Demand slow; supply ample; dehydrated, 17%, pellets $69; suncured, 13% $47.

Minneapolis: Demand remains slow; downward trend continues; 17% dehydrated, 100,000 units vitamin A reground pellets $58@59; oiled reground pellets $59@61; sacked $4 more.

Buffalo: Demand fair to poor; trend steady; supply adequate; $73, Boston.

Los Angeles: Demand slow; trend unchanged; supply better; dehydrated meal, 17% protein, 100,000 A $56@57; dehydrated pellet meal, 17% protein, 100,000 A $58@59; suncured meal, 15% protein $51@52; suncured crumbles, 15% protein $53@54.

Seattle: Demand fair; trend firm; supply good; 15% protein suncured $50, delivered, truck loads, sacked; 136,000 A unit dehydrated $72, delivered, truck loads.

ANIMAL FAT (STABILIZED)

Kansas City: Demand slow from feed trade; trend strong; supply ample; prime tallow 5¼¢ lb.

New Orleans: Demand fair; trend easy; supply adequate; 5⅛@6¢ lb., tank cars.

Ogden: Supply good; $5.50 cwt.

San Francisco: Demand fair; supply ample; bleachable fancy 6¢ lb.; yellow grease 4¾¢ lb.

Louisville: Demand better; trend steady; supply good; in tank, liquid form: bleachable white 5¾¢ lb.; white tallow 6¢ lb.; yellow grease 5¾¢ lb.

Ft. Worth: Demand good; supply light; prime tallow, tank cars 5¾¢ lb.; drums 8¼¢ lb., f.o.b. north Texas packing plants with returnable drums.

Chicago: Demand fair; trend firm; supply ample; tank, truck or car lots, bleachable fancy tallow $5.50 cwt., yellow grease $5 cwt.

Boston: Demand fair; supply good; tallow 5¾¢ lb., yellow grease 5¢ lb.

St. Paul: Demand fair to good; supply ample; bleachable fancy 5¼¢ lb., f.o.b. producer's plant.

Atlanta: Demand fair; trend steady; supply ample; 5¢ lb., f.o.b. Georgia and Alabama producing plants.

BARLEY FEED

Baltimore: Demand fair; trend steady; supply ample; $48.50, sacked.

Chicago: Demand quiet; trend steady; supply fair; $38, sacked.

Philadelphia: Demand slow; supply fair; $48.

New Orleans: Demand slow; trend unchanged; supply adequate; $51@52, sacked.

Denver: Demand good; trend firm; supply fair; rolled $2.05 cwt.

Ogden: Supply ample; rolled $46@47; whole barley $41@42.

Portland: Demand slow; supply ample; trend unchanged; rolled $53, ground $51.

San Francisco: Demand fair; supply ample; rolled $61; ground $60.

Boston: Demand slow; supply adequate; $49, sacked.

Los Angeles: Demand slow; trend weak; supply ample; standard rolled $2.90 cwt., standard ground $2.90 cwt., both sacked.

Seattle: Demand fair; trend firm; supply good; $47, truck lots.

BENTONITE (SODIUM)

Chicago: Demand fair; trend steady; supply ample; f.o.b. Wyoming and South Dakota shipping points: granular, 30 mesh $16.50; fine granular, 80 to 100 mesh $13.75; powder, 200 mesh $13.50, f.o.b. Belle Fourche, S.D., minimum 30-ton carlots, 80 granular $13.50 net; 200 mesh, fine $13.25 net.

Denver: Demand fair; trend slow; supply ample; $24.50, f.o.b. Denver.

Cincinnati: Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30 ton carlots: 80 granular $31.50, less than carlots $40; 200 mesh fine $31, less than carlots $40.

BLOOD FLOUR

Louisville: Demand fair to good; trend steady; supply good; $82.50@87.50, sacked.

BLOOD MEAL

Louisville: Demand and supply good; trend steady; $82.50@87.50, sacked.

New Orleans: Demand slow; supply ample; trend steady; $82.50@89.50, sacked.

Ogden: Supply ample; $90 ton in 100-lb. bags, f.o.b. Ogden.

Omaha: Demand fair; trend fair; supply ample; 80% $95, sacked, Omaha.

Chicago: Demand fair; trend firm; supply adequate; 80% protein $120, sacked.

San Francisco: Demand fair; supply ample; 14 n unit of ammonia, sacked.

Portland: Demand steady; supply ample; trend unchanged; $112.

Los Angeles: Demand good; trend steady; supply tight; 1¢ a unit of ammonia, sacked.

BONE MEAL (STEAMED)

Chicago: Demand and supply fair; trend steady; $100, sacked.

New Orleans: Demand fair; trend easy; supply ample; $85@90, sacked.

San Francisco: Demand good; supply ample; $75, sacked.

Louisville: Demand good; trend steady; supply ample; $85@90, sacked.

Ft. Worth: Demand good; supply scarce; $100, sacked, f.o.b. Ft. Worth, local manufacture.

Denver: Demand fair; trend steady; supply ample; $109, Denver.

Portland: Demand steady; supply ample; trend unchanged; $99.

Cincinnati: Demand good; trend steady; supply fair; $110, sacked, Cincinnati.

Boston: Demand steady; supply light; $105.

Buffalo: Demand good; trend steady; supply limited; $105, sacked.

Los Angeles: Demand slow; trend unchanged; supply limited; imported $81, 20-ton lots, sacked.

Seattle: Demand good; trend firm; supply limited; $90, ex-dock, sacked.

BREWERS DRIED GRAINS

San Francisco: Demand fair; supply ample; $54, sacked.

Louisville: Demand fair; trend steady; supply good; $53, sacked.

St. Louis: Demand fair; trend easy; supply adequate; $46.

Ft. Worth: Demand slow; supply sufficient; 26% protein $51.70, sacked, February.

Chicago: Demand poor; trend easier; supply ample; $34.50.

Philadelphia: Demand slow; supply light; $51.

New Orleans: Demand fair; trend easy; supply good; $52@53, sacked.

Cincinnati: Demand poor; trend steady; supply adequate; $46.

New York: Demand slow; trend easier; supply ample; $49 bulk, $55 sacked, Boston.

Boston: Demand fair; supply ample; 26% $48.50@49; 24% sacked $53.50; 22%, sacked $52.

Buffalo: Demand fair; trend lower; supply good; $47.50, Boston.

Los Angeles: Demand slow; trend unchanged; supply adequate; $50.50.

BREWERS DRIED YEAST

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11⅛¢ lb., all sacked.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11⅛¢ lb., all sacked.

New York: Carlots 9¼¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10⅛¢ lb.; ton lots 11¢ lb., all sacked, f.o.b. New Jersey.

Omaha: 10⅛¢ lb.

Chicago: Demand fair; trend steady; supply ample; 9⅛@10¢ lb., carlots, sacked; 9⅝@12¼¢ lb., l.c.l.

Milwaukee: Demand fair; trend steady; supply ample; 10⅛@12¼¢ lb., ton lots.

St. Louis: Demand fair; trend firm; supply ample; 9⅛@10¢ lb., carlots, sacked; 10⅛¢ lb., ton lots; 11⅛¢ lb., less than ton lots.

San Francisco: Demand fair; supply good; 10¢ lb., sacked.

Louisville: Demand fair; trend firm; supply good; 10@10⅛¢ lb., sacked.

Denver: Demand light; trend steady; supply ample; 8¢ lb., f.o.b. Golden, Colo.

Cincinnati: Carlots 11¢ lb.; 5-ton lots 11¢ lb.; ton lots 11⅛¢ lb.

Portland: Demand good; supply ample; trend unchanged; 8⅛¢ lb.

Boston: Demand and supply steady; 10¢ lb.

Los Angeles: Demand slow; trend unchanged; supply adequate; 10¢ lb., 5-ton lots; 11¢ lb., 1-ton lots; 12¢ lb., less than ton lots; all sacked.

Seattle: Demand slow; trend steady; supply ample; $12 cwt., sacked.

BUTTERMILK (CONDENSED)

Ogden: Supply fair; $4.40, 100-lb. drum.

Chicago: Demand quiet; trend steady; supply ample; $3.50@3.75 cwt., bbls.

New Orleans: Demand slow; trend unchanged; supply adequate; $4.15@4.25 cwt.

Philadelphia: Demand slow; supply light; $4.25 cwt.

San Francisco: Demand fair; supply good; 1 cwt., drums.

Louisville: Demand and supply nil; trend steady; $4.25 cwt., paper drums, nominal.

Boston: Demand and supply steady; 3.95¢ lb.

Los Angeles: Demand slow; trend unchanged; supply adequate; 5½¢ lb., 100-lb. lots in barrels; 4½¢ lb., 500-lb. lots in barrels.

CALCITE CRYSTALS AND FLOUR

(All prices net, sacked, including freight)

New York: Crystals $16.28, flour $10.28.
Buffalo: Crystals $17.11, flour $11.11.
Toledo: Crystals $18.96, flour $12.96.
Boston: Crystals $17.63, flour $11.63.
Lime Crest, N.J.: Crystals $11.50, flour $5.50.

CALCIUM CARBONATE

Minneapolis: Fine grind, 50-lb. bags $12.25, 100-lb. bags $11.50; bulk, boxcar $10; bulk, hopper $9.50; coarse grind $1 premium, delivered Minneapolis.

Chicago: Demand fair; trend steady; supply ample; fine grind, plain, 100-lb. bags $9.54; bulk, in hopper cars $7.54; bulk, in boxcars $8.04; granular grind $1 premium.

Cincinnati: Demand fair; trend steady; supply adequate; $7@7.50 cwt.

Los Angeles: Demand slow; trend unchanged; supply adequate; flour $10.15, 20-ton cars, sacked; meal $11.15, 20-ton cars, sacked.

Seattle: Demand and trend steady; supply good; $14, ex-warehouse, sacked.

CHARCOAL

Chicago: Demand fair; trend firm; supply fair; 50-lb. multiwalls $110.

Boston: Demand and supply steady; $110.

San Francisco: Demand steady; supply ample; $141, sacked.

Los Angeles: Demand slow; trend unchanged; supply ample; hardwood poultry: $156, less than ton lots, sacked; $144.40, ton lots, sacked.

COCONUT OIL MEAL

San Francisco: Demand good; supply tight; solvent $69.50.

Portland: Demand slow; supply ample; trend unchanged; $80.50.

Los Angeles: Demand slow; trend weak; supply adequate; copra cake $85.

Seattle: Demand fair; trend firm; supply limited; $86, delivered, truck, sacked.

COD LIVER OIL (FORTIFIED)

New York: Demand fair; trend steady; supply satisfactory; 1,500 A, 300 D 16⅛¢ lb.; 3,000 A, 300 D 20¢ lb.

Boston: Demand slow; supply ample; 300 D, 3,000 A 22¢ lb.; 600 D, 2,250 A 20½¢; 300 D, 2,250 A 20¢; 600 D, 1,500 A 19½¢; 300 D, 1,500 A 18½¢.

CONDENSED FISH SOLUBLES

New Orleans: Demand light; trend easy; supply fair; $42.50@45, f.o.b. Gulf.

Denver: Demand poor; trend steady; supply ample; dried $132, Denver.

New York: Demand fair; trend unchanged; supply satisfactory; $45, f.o.b. shipping points.

Boston: Demand and supply good; 4¾¢ lb.

Los Angeles: Demand slow; trend unchanged; supply adequate; 2¾¢ lb.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are bulk basis, sacked basis $5 more)

Minneapolis: Feed $47.60, meal $66.60.
Atlanta: Feed $51, meal $70.
Birmingham: Feed $49.60, meal $68.60.
Boston: Feed $52.50, meal $71.50.
Chicago: Feed $41, meal $60.
Cleveland: Feed $48.90, meal $67.90.
Denver: Feed $51.20, meal $70.20.
Ft. Worth: Feed $49.70, meal $68.70.
Indianapolis: Feed $46.20, meal $66.20.
Kansas City: Feed $41, meal $60.
Louisville: Feed $47.60, meal $66.60.
New Orleans: Feed $50.90, meal $69.90.
New York: Feed $53.10, meal $73.10.
Norfolk: Feed $51.50, meal $70.50.
Philadelphia: Feed $51.70, meal $70.70.
Pittsburgh: Feed $49.60, meal $68.60.
St. Louis: Feed $41, meal $60.
Decatur, Ill.: Feed $39.75, meal $58.75.

CORN OIL MEAL

Louisville: Demand slow; trend steady; supply light; $55.45, sacked.

Cincinnati: Demand fair; trend steady; supply adequate; $49.

COTTONSEED OIL MEAL

Cincinnati: Demand poor; trend steady; supply adequate; $63.

Wichita: Demand good; supply sufficient; 41% old process $72.50, sacked.

San Francisco: Demand good; supply tight; 41% $71.50, 44% $76.

Louisville: Demand fair; trend easy; supply good; old or new process $63, sacked.

Memphis: Demand poor; trend easier; supply plentiful; prime 41% protein, old process $52.50; new process, 41% solvent $51.50.

Kansas City: Demand slow; trend weak; supply ample; 41% old process $52.50, Memphis; 41% solvent process $51.50@52, Memphis.

Omaha: Demand fair; trend weak to lower; supply plentiful; 41% solvent $66, delivered Omaha.

Philadelphia: Demand slow; trend unsettled; supply fair; $70.

St. Louis: Demand slow; trend steady; supply ample; solvent $56.

Ft. Worth: Demand fair; supply ample; 41% old process $62@65, depending on origin; solvent 2% fat added $59.60; pellets $3 additional; cottonseed hulls $14.

Chicago: Demand quiet; trend easier; supply ample; Memphis: hydraulic $54, solvent $54.

Denver: Demand fair; trend steady; supply ample; 2% $63.40, Denver.

Portland: Demand slow; supply ample; trend unchanged $75.

Ogden: Supply good; 41% $72@75.

New Orleans: Demand slow; supply ample; trend steady; $71.50@72.50, sacked.

Boston: Demand slow; supply plentiful; $72.

Atlanta: Demand fair; trend weak; supply good; 41% $60.30, delivered.

Buffalo: Demand poor; trend steady to lower; supply fair; $74, sacked, Boston.

Los Angeles: Demand slow; trend weak; supply adequate; $71@72.

Seattle: Demand good; trend steady; supply limited; 41% expeller process $80, delivered, truck lots.

CURACAO PHOSPHATE

New York: $48 sacked, $46 bulk, f.o.b. New Orleans, Jacksonville or Philadelphia.

D ACTIVATED ANIMAL STEROL (POWDERED)

Kansas City: Demand fair; trend steady; supply adequate; 1,500 ICU 9⅝¢ lb.; 3,000 ICU 11¢ lb.

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 10¢ lb. warehouse.

D ACTIVATED PLANT STEROL (POWDERED)

Chicago: Demand fair; supply ample; 4,000,000 U.S.P. units per lb., 15¢ lb. in ton lots, less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 35%, maximum fluorine .19% $74.35 net ton, f.o.b. Houston; 100-lb. multiwall bags $77.35, bulk.

Tupelo, Miss.: Minimum phosphorus 14%, minimum calcium 23%, maximum fluorine .14% $57.07, f.o.b. Tupelo in 100-lb. multiwall bags, $54.07, bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum 36%, maximum fluorine .18% $71.80 (or $3.99 per unit of P), f.o.b. Wales in 100-lb. multiwall bags, $3 less in bulk.

Coronet, Fla.: Carload, bagged $66.25 and bulk $63.25; truck load, bagged $67 and bulk $64, f.o.b. Coronet, Fla.

Cincinnati: 18% phosphorus $51.02; 14% phosphorus $71.03, f.o.b. Cincinnati.

DICALCIUM PHOSPHATE

Trenton, Mich.: 18½% P $83, bulk, boxcar/hopper car; $86, bagged, in carloads or truckloads; $96, bagged, in less than carload lots; 21% P, $94.65, bulk, boxcar/hopper car; $97.64, bagged in carloads or truckloads; $107.65, bagged, less than carload; all prices f.o.b. Trenton, freight equalized with nearest producing point.

Chicago: Bulk 18.5% phosphorus, carlots or trucks $83; 20,000 lb. or more $86 net ton in 100-lb. papers; less than 20,000 lb. $96, basis Chicago Heights, Ill., or Nashville, Tenn.; 21% phosphorus, carlots or trucks, bulk $94.65; 20,000 lb. or more, per net ton in 100-lb. papers, $97.65 and less than 20,000 lb., $107.65, basis Chicago Heights, Ill., or Nashville, Tenn.

Bonnie, Fla.: Minimum phosphorus 18½%, granular, $86 (or $4.65 unit of P), freight equalized from nearest producing point, carload basis; bulk carloads $3 less; in truck loads of less than 10 tons, $10 more. Western slope prices: for delivery at established railroad stations and by truck at regular feed mixing plants: California, Arizona, Nevada and Utah, $99.90; Washington, Oregon, Montana and Idaho, $107.15; bulk carloads $3 less; truck loads less than 10 tons, $10 more.

Columbia, Tenn.: Minimum phosphorus 18½%, minimum calcium 24% $86, f.o.b. Columbia, in 100-lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Texas City, Texas: Carload and truckload, bagged $80.50, bulk $77.50, f.o.b. Texas City, Texas.

Denver: Demand fair; trend slow; supply ample; $95.80, f.o.b. Denver.

Portland: Demand slow; supply ample; trend unchanged; $112.

Cincinnati: 18½% phosphorus $92.15, f.o.b. Cincinnati.

DISTILLERS DRIED GRAINS

San Francisco: Demand fair; supply ample; solubles $85, sacked.

Louisville: Demand good; trend steady; supply light; bourbon grains: light $55, dark $60, solubles $77, all sacked.

Philadelphia: Demand slow; supply light; $63.

Cincinnati: Demand poor; trend steady; supply adequate; $51.50.

Boston: Demand good; supply spotty; domestic $42, Canadian, sacked $55.

Buffalo: Demand fair; trend lower; supply adequate; $60, sacked, Boston.

Seattle: Demand good; trend firm; supply limited; $68.50, delivered, truck lots, sacked.

DRIED BEET PULP

Ogden: Supply good; $41@46.

Ft. Worth: Demand slow; supply sufficient; 50 lb. papers $54, 30 days' shipment, delivered Ft. Worth.

New Orleans: Demand fair; trend steady; supply adequate; $52@53, sacked.

Denver: Demand excellent; trend very strong; supply nil; $32.50, bulk, f.o.b. Colorado factories; $34.50, pellets, f.o.b. Colorado factories.

San Francisco: Demand good; supply fair; $45.20.

Portland: Demand good; supply ample; trend unchanged; $56.40.

Boston: Demand slow; supply steady; $53, sacked.

Atlanta: Demand practically nil; trend steady; supply limited; $58, sacked, delivered.

Buffalo: Demand and supply fair; trend steady; $53, Boston.

Los Angeles: Demand slow; trend unchanged; supply adequate; $47.80@49.40.

Seattle: Demand good; trend firm; supply limited; $52, delivered, carlots, sacked.

DRIED BUTTERMILK

Chicago: Demand slow; trend firm; supply ample; medium acid $12@12.50 cwt., sweet cream $12@12.50 cwt., both sacked.

New Orleans: Demand fair; trend steady; supply ample; $14@14.50 cwt.

Ogden: Supply ample; $17.25 cwt.

San Francisco: Demand fair; supply ample; 11¾¢ lb., sacked.

Louisville: Demand slow; trend steady; supply light; 13@13½¢ lb., sacked.

Boston: Demand good; supply spotty; 14¢ lb.

Los Angeles: Demand slow; trend unchanged; supply adequate; 13¢ lb., sacked.

DRIED CITRUS PULP

New Orleans: Demand fair; trend easy; supply normal; $32.50@35, f.o.b. Florida points.

San Francisco: Demand and supply fair; meal $49, sacked.

Boston: Demand slow; supply ample; $30, sacked, f.o.b. Florida.

Buffalo: Demand poor; trend steady to lower; supply adequate; $30.50, sacked, f.o.b. Florida points.

Los Angeles: Demand slow; trend unchanged; supply better; orange pulp $41, nominal; lemon pulp $40.

DRIED SKIM MILK

Philadelphia: Demand slow; supply light; $12.50 cwt.

San Francisco: Demand and supply fair; 13½¢ lb., sacked.

Louisville: Demand slow; trend steady; supply light; 13½@14¢ lb., sacked.

New Orleans: Demand slow; trend unchanged; supply ample; $14@14.50 cwt.

Ogden: Supply ample; $15.15, 100-lb. drum.

Chicago: Demand slow; trend firm; supply good; $12@12.50 cwt., sacked.

Cincinnati: Demand fair; trend steady; supply adequate; 13@14¢ lb., sacked.

Boston: Demand active; supply scarce; 13¢ lb., nominal.

Minneapolis: Demand and supply steady; $13.50@13.75 cwt., sacked.

Los Angeles: Demand slow; trend unchanged; supply adequate; 15¢ lb., less than ton lots, sacked; 14¾¢ lb., ton lots, sacked.

DRIED WHEY

Wichita: Demand light; supply ample; $6.50 cwt., sacked.

New Orleans: Demand fair; trend easy; supply ample; $6@6.50 cwt., sacked.

Ogden: Supply good; $6, 100-lb. bag, sacked.

Philadelphia: Demand slow; supply light; $6.50 cwt.

Kansas City: Demand fair; trend steady; supply adequate; regular or partially delactosed $5.50 cwt., producers' points.

Chicago: Demand quiet; trend unchanged; supply adequate; $5.75@6 cwt., sacked.

Ft. Worth: Demand fair; supply adequate; carlots, standard $6, sacked, delivered Ft. Worth; $6.25 ton lots, f.o.b. warehouse Ft. Worth.

San Francisco: Demand steady; supply good; $5.75 cwt., sacked.

Louisville: Demand slow; trend steady; supply normal; 6¼¢ lb., sacked.

Portland: Demand slow; supply ample; trend unchanged; $5.80 cwt.

Denver: Demand fair; trend steady; supply ample; $6.50 cwt.

Cincinnati: Demand fair; trend steady; supply adequate; $4 cwt., sacked.

Boston: Demand and supply steady; 5½¢ lb., f.o.b. shipping points.

Los Angeles: Demand slow; trend unchanged; supply adequate; $5.93 cwt., carloads, sacked; $6.23 cwt., l.c.l., sacked.

Seattle: Demand and trend steady; supply good; $6.40 cwt., ex-warehouse, l.c.l.

FEATHER MEAL (HYDROLYZED)

Ft. Worth: Demand good; supply scarce; 85%-87% protein $70@75, sacked, f.o.b. trucks, north Texas plants.

Boston: Demand and supply steady; $80, sacked, f.o.b. shipping points.

Los Angeles: Demand slow; trend weak; supply adequate; $1 a unit of protein, sacked.

Atlanta: Demand fair; trend steady; supply limited; $78.50, f.o.b. Georgia and Alabama producing points.

FISH MEAL

Louisville: Demand slow; trend steady; supply light; $148, sacked, nominal.

Ogden: Supply good; $1.70 a unit, f.o.b. Coast; 65% $115@117.

New Orleans: Demand dull; trend easy; supply ample; menhaden, 60% $110@115, sacked; scrap $106@111, sacked, f.o.b. Gulf.

San Francisco: Demand slow; supply ample; $1.70 a unit of protein, sacked.

New York: Demand fair; trend steady; supply adequate; 60% menhaden meal $110; 65% imported fish meal $106@108, f.o.b. shipping points.

Chicago: Demand slow on eastern menhaden, good on Gulf menhaden; trend steady; eastern menhaden, meal $103@110 and scrap $99@106; Gulf menhaden, meal $108@115 and scrap $104@111; Canadian herring meal $1.60@1.75 a unit of protein.

Ft. Worth: Demand fair; supply sufficient; 65% protein $110, sacked, delivered Ft. Worth.

Denver: Demand fair; trend steady; supply ample; $1.75 a unit of protein, f.o.b. West Coast.

Omaha: Demand fair; trend firm; supply ample; 60% menhaden $130, f.o.b. Omaha.

Portland: Demand slow; trend lower; supply ample; $1.65 a unit.

Cincinnati: Demand fair; trend steady; supply adequate; $145.

Boston: Demand slow; supply good; $117, sacked.

Minneapolis: No change from last week; Gulf menhaden steady at $130@133, sacked, truck lots; 70% herring $1.60 a unit protein, f.o.b. West Coast; 60% blended steady at $129@132, sacked, delivered Minneapolis.

Atlanta: Demand fair; trend weak; supply good; 60% menhaden $105@110, sacked, Atlantic and Gulf ports.

Buffalo: Demand just fair; trend steady; supply ample; 60% protein menhaden $125 bulk, $130 sacked.

Los Angeles: Demand slow; trend weaker; supply adequate; local production, 60% protein $1.70 a unit, sacked.

Seattle: Demand and supply good; trend firm; $1.95 a unit protein, delivered truck lots, sacked (Canadian production).

HAY

Louisville: Demand dull; trend steady; supply good; No. 1 hay, any variety $30@35, No. 2 $28@30; straw $18@20.

Cincinnati: Demand poor; trend steady; supply adequate; No. 1 timothy $24@25; alfalfa clover mixed $27.50; No. 1 red clover $26@27; alfalfa, first cutting $32, second cutting $25; wheat or oat straw $18@20.

Wichita: Demand good; supply insufficient; prairie $23@25; alfalfa $32@34, baled.

Philadelphia: Demand slow; supply light; $24@25.

Portland: Demand good; supply ample; trend unchanged; $39.

Denver: Demand and supply fair; trend good; $31, new hay, first cutting; $31@32, new hay, third cutting, alfalfa baled.

Ogden: Supply good; $25 in the barn.

Ft. Worth: Demand fair for alfalfa, very slow for prairie and Johnson grass; supply sufficient; carlots, baled, No. 1 alfalfa $40@42, No. 2 $35@40; No. 2 prairie $24@26; No. 2 Johnson grass $22@24, delivered Texas common points.

Boston: Demand and supply steady; No. 2 timothy $40@42.

Los Angeles: Slow demand with adequate offerings; U.S. No. 1 $43@44; U.S. No. 2 leafy $40@41; U.S. No. 2 green $41@42; U.S. No. 2 $37@39.

Seattle: Demand good; trend easy; supply fair; baled U.S. No. 2 green alfalfa $40, delivered truck lots.

HOMINY FEED

Louisville: Demand slow; trend steady; supply normal; $48, sacked.

Kansas City: Demand fair; trend steady; supply limited but ample; yellow $32@33, white $31@31.50.

St. Louis: Demand slow; trend steady; supply ample; yellow $38.50.

New Orleans: Demand fair; trend steady; supply ample; $46.50@48.50, sacked.

Cincinnati: Demand poor; trend steady; supply adequate; $41.

Memphis: Demand poor; trend steady; supply ample; white $40, yellow $40.

Chicago: Demand quiet; trend easier; supply fair; $38.50.

Boston: Demand slow; supply plentiful; $47.50.

Buffalo: Demand and supply fair; trend steady; $48.50, Boston.

Seattle: Demand fair; trend steady; supply limited; $54, delivered carlots, sacked.

LINSEED OIL MEAL

Ft. Worth: Demand slow; supply sufficient; 34% protein, solvent $80, rail, February-March.

San Francisco: Demand fair; supply ample; $78.50

Louisville: Demand slow; trend easy; supply normal; old process $91.50, new process $82.50, both sacked.

Cincinnati: Demand poor; trend steady; supply adequate; new process $66; old process $75.50, Minneapolis.

Denver: Demand poor; trend steady; supply fair; $81.30, Denver.

Chicago: Demand fair; trend sharply lower; supply adequate; Minneapolis: solvent $61; expeller $72.

Kansas City: Demand poor; trend weak; supply plentiful; solvent process $60.50@61; old process $72@72.50, Minneapolis.

Omaha: Demand fair; trend steady; supply ample; 34% solvent $68.50; 32% old process $74.50, Omaha.

Philadelphia: Demand and supply fair; 34% $81.

New Orleans: Demand slow; trend easy; supply ample; $85.50@87.50, sacked.

Wichita: Demand fair; supply sufficient; 34% $86.50, sacked.

Portland: Demand slow; supply ample; trend unchanged; $91.

Boston: Demand slow; supply ample; 34% $81.

Minneapolis: Trend still downward; new process $62.50; old process $73, nominal.

Los Angeles: Demand slow; trend unchanged; supply adequate; local production, 31% protein $75, nominal.

Seattle: Demand fair; trend steady; supply limited; 31% protein (California) $91, delivered carloads, sacked.

LIVER AND GLANDULAR MEAL

Omaha: Demand and trend fair; supply short; 65% $180, sacked, Omaha.

MALT SPROUTS

Chicago: Demand good; trend higher; supply fair; $33.

New Orleans: Demand fair; trend easy; supply ample; $43.50@45, sacked.

Cincinnati: Demand fair; trend steady; supply adequate; No. 1 $46.

Boston: Demand and supply limited; $48, sacked.

MEAT AND BONE MEAL

Ft. Worth: Demand fair; supply moderate; meat and bone, 50% $74@75, f.o.b. Ft. Worth.

Ogden: Supply good; $30, 50% protein, 100-lb. bags.

Chicago: Demand fair; trend firm; supply ample; 50% protein $77.50, sacked.

New Orleans: Demand slow; trend easy; supply ample; $82.50@87, sacked.

San Francisco: Demand fair; supply ample; $1.55 a unit of protein.

St. Louis: Demand fair; trend steady; supply ample; $72.50.

Kansas City: Demand slow; trend steady; supply ample; 50% $67.50@70.

St. Paul: Demand dragging along; supply adequate; down $1 at the bottom of the range, off $3 at the top $68@72.

Omaha: Demand and trend fair; supply ample; $72.50 ton in 100-lb. bags; $75 ton in 50-lb. bags.

Louisville: Demand slow; trend firm; supply good; $82.50@87.50, sacked.

New York: Demand fair; supply adequate; trend unchanged; 50% $70, sacked; 55% $77.50, sacked.

Wichita: Demand fair; supply sufficient; 50% $83, sacked, f.o.b. plant; 55%, no quotations, no offerings.

Denver: Demand fair; trend better; supply ample; 50% $67.50, sacked, truck lots; $64.50, bulk.

Cincinnati: Demand good; trend steady; supply short; 50% meat and bone scraps $73.50, Cincinnati.

Portland: Demand good; supply ample; trend unchanged; $1.40 a unit.

Boston: Demand slow; supply steady; $1.20 a protein unit; converted 50% $72.50.

Los Angeles: Demand slow; trend weak; supply adequate; 50% protein $1.70 a unit.

Buffalo: Demand just fair; trend easier; supply ample; 50% meat scraps $70 bulk, $75 sacked.

Seattle: Demand good; trend steady; supply ample; $77.50, ex-warehouse, sacked, 50% protein.

MILLFEED

Minneapolis: Some improvement noted in demand; production lighter; bran advanced $2 from last week to $40, sacked; middlings steady to stronger, $35.50@38.50, sacked; red dog off 50¢ to $40, jutes.

Kansas City: Demand good; trend strong; supply of nearby tight; sacked, bran $37@37.50, shorts $36.50@37; bulk, bran $32@32.50, shorts $33@33.50, middlings $32.50@33.

Wichita: Demand fair, mostly nearby; supply sufficient; basis Kansas City: bran $35.50@36, shorts $35.25@35.75.

Ft. Worth: Demand good; offerings light; bran $42.50, burlaps $45.50; gray shorts $43, burlaps $45.50; bulk middlings $42.50, delivered Texas common points.

Chicago: Brisk recovery in both bran and middlings brought advances of $3 ton on each. Comparative quiet in domestic flour circles, along with prospects for a lessened movement in March of flour abroad, put the spotlight on the matter of running time and this in turn stirred sharp increase in demand. Red dog was quoted at just about midway between the high and low of a week ago. Quotations: standard bran $37.50, middlings $38.50, red dog $43.50.

Omaha: Demand good; trend steady to higher; supply ample; sacked bran $37.50; sacked gray shorts $37; bulk standard midds. $34; all Omaha basis.

Cincinnati: Demand poor; trend of bran steady, middlings lower; supply adequate; bran $42, middlings $39.

Memphis: Demand fair; trend steady to higher; supply ample; wheat bran $38.20, gray shorts $40.20, standard midds. $39.20.

St. Louis: Demand slow; trend firm; supply ample; sacked, bran $42.50, shorts $42.25; bulk, bran $37, middlings $38.

Boston: Demand light; supply ample; bran and middlings $48.

Buffalo: Millfeeds, in a counter move to the ingredient market, worked higher last week on a combination of curtailed flour mill running time and blizzards. Mixer buying was not aggressive. Sacked differential on bran and middlings held steady at $6.50. Bulk and sacked bran and middlings ended $2.50@3.50 higher. Red dog continued to decline, with bulk down $2@3 and sacked off $1. Quotations Feb. 17: bulk bran $40@41, sacked $46.50@48; bulk middlings $40@42.50, sacked $46.50@49; bulk red dog $42@43, sacked $46@47.50.

Philadelphia: Demand spotty; trend unsettled; supply fair; bran $46, standard midds. $46, red dog $52.

New Orleans: Demand good; trend easy; supply ample; sacked, bran $46.25@47, shorts $46.25@47; bulk, bran $42.25, shorts $41.75@42.50, middlings $40.75@41.50.

Louisville: Demand fair; trend stronger; supply good; bran $47.85, mixed feed $47.35, shorts $48.10, all sacked.

Ogden: Supply ample; to Utah and Idaho: red bran and mill run $34, middlings $39; to Denver: red bran and mill run $41, middlings $46; to California: red bran and mill run $41.50, middlings $46.50, f.o.b. San Francisco and Los Angeles.

Denver: Stronger market; trend better; supply limited; shorts $38.75, bran $39, mill run $39.

Seattle: Demand fair; trend easy; supply good; $36, delivered, common transit points, carlots.

San Francisco: Demand slow; supply ample; millfeed $41.50; red bran $52.50.

Portland: Demand good; supply ample; trend unchanged; $36.

Los Angeles: Demand slow; trend weaker; supply ample; standard mill run $41, red bran $45@46.

MINERAL FEED

Portland: Demand slow; supply ample; trend unchanged; $42.

Sioux City: 50-lb. mineral blocks 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.

San Francisco: Demand steady; supply good; all-purpose with iodine $70, sacked.

Denver: Demand fair; trend slow; supply ample; $100.

Ft. Worth: Demand fair; supply sufficient; all-purpose granules $90, block $97; mineral phosphorus 6% granules $106, block $113; cattle-sheep mineral 7% phosphorus granules $100, block $107; hog mineral phosphorus 3½% granules $87, phosphorus 2% $77 (all in 50-lb. paper bags).

Ogden: Supply ample; $113 ton in 50-lb. blocks; $103 ton, granular, 50-lb. bags.

Wichita: Demand heavy; supply adequate; all-purpose with iodine, 50-lb. blocks $97.50, 100-lb. bags $92.50, f.o.b. plant.

Seattle: Demand fair; trend steady; supply good; mixer mineral $48, ex-warehouse, sacked; all-purpose mineral $85, ex-warehouse, sacked.

MOLASSES

St. Louis: Demand slow; trend steady; supply ample; 9½¢ gal., tank car, New Orleans.

Minneapolis: Trend steady; $28.50, tank truck, delivered.

Cincinnati: Demand fair; trend steady; supply adequate; 9¾¢ gal., New Orleans.

Memphis: Demand poor to good; trend upward; supply ample; blackstrap 9¼@9¾¢ gal., tank car, f.o.b. New Orleans; $22.27 ton, delivered, Memphis, truck.

Kansas City: Demand fair; trend steady; supply ample; blackstrap 9¼¢ gal., f.o.b. tank car, New Orleans.

New Orleans: Demand good; supply ample; trend steady; 9¾@10¢ gal., tank cars and trucks; 600-lb. customers' drums $6.92.

San Francisco: Demand and supply good; $20, f.o.b. cars, Richmond, Cal.

Louisville: Demand slow; trend steady; supply good; 9½¢ gal., tank car lots, f.o.b. Gulf ports.

Ft. Worth: Demand good; supply sufficient; blackstrap 10¢ gal., f.o.b. Houston; delivered Ft. Worth, truck, $23.80 seller's market price on date of shipment.

Denver: Demand fair; trend steady; supply ample; 9½¢ gal., New Orleans; $16.24 ton, New Orleans; $20 ton, West Coast.

New York: Demand moderate; trend barely steady; supply adequate; 14¢ gal., Albany.

Boston: Demand active; supply plentiful; 14¢ gal., tank cars.

Los Angeles: Demand steady; trend unchanged; supply ample; $20, f.o.b. tank cars; $20.25, f.o.b. tank trucks.

Atlanta: Demand fair; trend steady; supply ample; citrus $15@17, f.o.b. Florida producing plants.

Buffalo: Demand and supply fair; trend steady; 14¢ gal., f.o.b. Albany.

Seattle: Demand fair; trend easy; supply good; $20.25, f.o.b. Seattle, tank truck lots.

NIACIN

New York: 50% $1@1.20 lb.

OAT PRODUCTS

Memphis: Demand poor; trend lower; supply ample; 3½% protein, reground oat feed $28.

Chicago: Demand fair; trend irregular; supply ample; reground oat feed $30; No. 1 fine ground feeding oatmeal $77; feeding rolled oats $75.50@80.50.

Louisville: Demand fair; trend easy; supply good; reground $27.80, rolled $86.75, feeding $81.75, pulverized white $53.80, crimped white $68.30, all sacked.

Minneapolis: Demand still slow; downward trend continues; feeding rolled down $3 from last week, $79; feeding oatmeal off $1.50 at $67.50; pulverized up 50¢ to $46.50; reground oat feed steady at $26; crimped off $2 at $61, all sacked prices.

Philadelphia: Pulverized white, demand slow, supply fair, $54; domestic, demand slow, supply light, $30.50; Canadian oat feed, demand slow, supply light, $35, sacked.

Ft. Worth: Demand slow; supply moderate; oat millfeed $51.70; reground $32.75, sacked, new jutes.

Portland: Demand slow; supply ample; trend unchanged; rolled $40, ground $62, cleaned $60.

Cincinnati: Demand poor; trend steady; supply adequate; reground oats $29; pulverized white oats $45.

Boston: Demand slow; supply adequate; white pulverized, sacked $59; reground oat feed, sacked $31.

Los Angeles: Demand slow; trend unchanged; supply limited; local production, pulverized $69, sacked.

Seattle: Demand good; trend firm; supply fair; $56, delivered, truck lots, 36-lb. or better.

OYSTER SHELL

New Orleans: Demand good; supply good; trend steady; $24@24.50, papers.

Cincinnati: Demand fair; trend steady; supply adequate; $24.45, sacked.

San Francisco: Demand fair; supply ample; local $15, eastern $26, sacked.

Louisville: Demand and supply good; trend firm; in 80-lb. paper sacks $23.45; in 50-lb. paper sacks $23.70; in 25-lb. paper sacks $25.95.

Portland: Demand slow; supply ample; trend unchanged; western $31, eastern $36, granite grits $25, shell flour $21.

Boston: Demand and supply steady; $26, paper.

Los Angeles: Demand slow; trend unchanged; supply ample; $14.80.

Seattle: Demand and trend steady; supply good; eastern $36, delivered carlots, sacked.

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PEANUT OIL MEAL

Atlanta: Demand fair; trend weak; supply limited; 45% $58.50 for expeller, $56.50 for solvent, f.o.b. Georgia and Alabama producing mills.

POTASSIUM IODIDE, U.S.P.

Chittenango, N.Y.: Demand good; trend firm; supply ample; standard blends, 90% KI, 10% stearate or carbonate mixture, 100 lb. drums $1.32 lb.; 200 lb. and up $1.30 lb., all delivered.

Cincinnati: Demand good; trend steady; 90% KI in calcium stearate or carbonate mixtures: 250-lb. drums $1.35; 200 lb. in 100-lb. drums $1.35; 100-lb. drum $1.38; 25-lb. drums $1.41, f.o.b. Cincinnati.

POULTRY BY-PRODUCTS

Ft. Worth: Demand good; supply scarce; 55% protein $82.50@85, sacked, f.o.b. north Texas plants.

Boston: Demand fair; supply spotty; $69, f.o.b. shipping points.

Los Angeles: Demand slower; trend weak; supply adequate; $1.50 a unit of protein.

Atlanta: Demand fair; trend steady; supply limited; meal $79, f.o.b. Georgia and Alabama producing plants.

RIBOFLAVIN

New York: $40 kilo in 4 and 18 gm./lb. mixtures.

Cincinnati: Trend steady; feed grade (in feed supplements), 4¢ gm. in less than ton lots, in 3.36 to 16 gm./lb. mixtures; 3¢ in ton lots or more; freight prepaid or paid to destination.

RICE BY-PRODUCTS

Ft. Worth: Demand slow; supply moderate; rice bran $30, f.o.b. south Texas rice mills; hulls $3.50, sacked, f.o.b. mills.

San Francisco: Demand good; supply ample; bran $45, polished $49, both sacked.

Los Angeles: Demand slow; trend unchanged; supply adequate; California production, high fat content, bran $52, sacked.

Atlanta: Demand fair; trend weak; supply good; bran $45, sacked, delivered.

SCREENINGS

Minneapolis: Offerings a little freer, but supply still tight; Canadian off $1 to $27, Duluth; domestic ranges unchanged; lights $13@23, mediums $24@33, heavies $34@43.

Chicago: Demand mixed; trend irregular; supply fair; ground grain screenings $38.50; Canadian $31.50.

Ft. Worth: Demand good; supply limited; ground mixed grain $28.50@29.50.

Cincinnati: Demand fair; trend steady; supply adequate; unground screenings $25@26, Cincinnati.

Buffalo: Demand poor; trend steady to lower; supply fair; ground, sacked $40.50, New York; unground, bulk $36, New York.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

(Sacked)

Atlanta: $20.40@20.67.
Buffalo: $25.31@25.45.
Chicago: $24.77@24.90.
Cincinnati: $23.47@23.60.
Des Moines: $25.23@25.35.
Kansas City: $24.85@25.
Memphis: $22.20@22.47.
Minneapolis: $25.92@26.06.
Philadelphia: $24.32@24.95.
St. Louis: $24.14@24.27.

SORGHUMS

Ft. Worth: Demand poor; supply sufficient; No. 2 yellow milo $1.99@2, delivered Texas common points.

Ogden: Supply good; milo $42@43.

Los Angeles: Demand slower; trend weaker; supply ample; milo $2.12½ cwt.

Seattle: Demand and supply good; trend steady; milo $46, delivered, carlots.

SOYBEAN OIL MEAL

Cincinnati: Demand poor; trend steady; supply adequate; $56@58, Decatur.

Minneapolis: Quiet demand and downward trend continue; 44% off another $1 at $48, Decatur.

Chicago: There was a still further scaling-down in soybean oil meal prices during the week ending Feb. 17. Quotations: Decatur, bulk, carlots—44% protein, unrestricted billing $57 and eastern restricted $52; 50% protein, unrestricted $62 and eastern restricted $57.

Wichita: Demand fair; supply ample; 44% $67, 50% $73, sacked; 44% $64, 50% $70, bulk, f.o.b. Wichita.

Denver: Demand very poor; trend steady; supply ample; $66, Denver.

Memphis: Demand poor; trend lower; supply limited; prime 44% solvent $59, f.o.b. Memphis.

Ft. Worth: Demand fair; supply sufficient; 44% $64.70@67.70 February-March, $66@68.50 April-July; 50% protein $69.70@71.70 February-March, depending on origin; trucks: 44% $66.50@67.50, 50% protein $71.50@72.50.

New Orleans: Demand slow; trend easy; supply ample; $69@70, sacked.

San Francisco: Demand fair; supply ample; $77.40.

Louisville: Demand fair; trend easy; supply good; $65.70, sacked.

St. Louis: Demand slow; trend steady; supply ample; 44% $58.

Portland: Demand slow; trend lower; supply ample; $49, f.o.b. Decatur.

Omaha: Demand fair; trend weak; supply ample; 44% $61, delivered Omaha.

Philadelphia: Demand and supply fair; 44% $53, Decatur.

Kansas City: Demand slow; trend weak; spot supplies pressing; 44% solvent process $52@52.50, Decatur.

Boston: Demand light; supply plentiful; 44% $52.50, 50% $57.50, f.o.b. Decatur.

Los Angeles: Demand slow; trend weaker; supply ample; $75.90@76.40.

Atlanta: Demand fair; trend steady; supply ample; 44% $65.50, delivered.

TANKAGE

St. Paul: Demand slow; supply ample; steady at $68@72.

St. Louis: Demand fair; trend steady; supply ample; $71.

Chicago: Demand fair; trend firm; supply ample; 60% protein $77.50, sacked.

Ft. Worth: Demand fair; supply light; 60% digester $80, Ft. Worth.

New Orleans: Demand dull; trend steady; supply good; 60% protein $82.50@85, sacked.

Cincinnati: Demand fair; trend easy; supply ample; 60% digester $78, Cincinnati.

Louisville: Demand fair; trend firm; supply good; 60% $82.50@87.50.

Kansas City: Demand slow; trend steady; supply ample; 60% digester $70.

Omaha: Demand good; trend firm; supply short; 100-lb. bags $72.50, 50-lb. bags $75.

Wichita: Demand fair; supply sufficient; 60% $83, f.o.b. plant, sacked.

VEGETABLE AND ANIMAL FAT (HYDROLYZED)

Ft. Worth: Demand good; supply light; 4½¢ lb., f.o.b. north Texas area.

VITAMIN E FEED SUPPLEMENT

Cincinnati: Demand good; trend steady; any quantity in 100-lb. drums $1.50; in 25-lb. drums $1.55, freight allowed to destination.

WHEAT GERM MEAL

New Orleans: Demand fair; trend easy; supply ample; $62@64, cottons.

Minneapolis: Demand good; supply tight; steady at $54, jutes.

Buffalo: Demand fair; trend steady; supply poor; commercial grade $69, sacked, f.o.b. Buffalo.

WASHINGTON

(Continued from page 1)

● "Contract growing with guaranteed amounts to producers, will be here for some time to come, even though it is a form of insanity."

● "There is a place for the retail dealer in the feed industry, but he must serve and compete and diversify or else decay."

● Much of the industry still feels it won't be necessary to go all out on contracting. In future contracting there may be more sharing of both profits and losses. Also, horizontal integration may increase.

● "The industry generally is not now prepared to own housing as well as poultry, but I think this will come to pass."

● Over the long term feed output will increase substantially, but who will produce the feed is the question.

● If the producer can borrow capital and expand, he can remain independent. "We want to use our capital and facilities to make feed and not to own poultry ranches."

● "We must admit that as operations become larger, the dealer who is strictly a dealer will lose out. Direct sales will increase."

● There may be some further changes, but the industry generally prefers to get its profits from doing a good job of providing feed rather than through end products.

● Control of production is moving closer to processors and food chains.

● "The feed man should be sure he is doing the best possible job of his primary responsibility before he considers other things."

Len Hitchman, Ralston Purina Co., Seattle, moderated the discussion. Panel members were Henry Fors, Fors Hatchery & Breeding Farm, Puyallup, Wash.; Lowell Judd, district manager, Albers Milling Co., Seattle; Oakley Ray, market research director, American Feed Manufacturers Assn., Chicago; William H. Udell, North Pacific states division manager for Purina, Portland; M. V. Wolfkill, Wolfkill Feed & Seed Co., Monroe, Wash., and Dwight Howell, feed division manager, Centennial Mills, Inc., Portland.

And here is what they had to say:

SALES OF FEED MIXES AT SO MUCH PER TON OVER INGREDIENT COST—This practice, it was noted in the introduction, is spreading into the Northwest. The discussion of the topic was handled by Mr. Udell, who formerly was located in California.

The practice of "group specification buying," Mr. Udell said, started in southern California, especially in the Los Angeles area. The first group was made up of 32 egg producers with 350,000 layers. The hens plus replacements accounted for 20,000 tons of feed business. The group obtained formulas from the University of California and took them to local millers and asked for bid prices at so many dollars per ton over bulk ingredient prices, f.o.b. plant. The feed prices were figured every Friday for the coming week. The mill's services included grinding, mixing, delivery and credit. Initially, the margin over ingredient prices was $8.50 to $9 ton.

The practice has increased, Mr. Udell said, and this type of business has spread out among more feed firms. Today the going rate charged by mills is $5.20 ton. Average delivery is 50 miles. Two weeks' credit is provided. Growers have a revolving fund, so it is not likely that there will be credit losses.

Group specification buying is now prevalent in central California as well as southern California, Mr. Udell said, and it has moved into the Pacific Northwest to some extent.

He said he knows of no manufacturer who has gone broke on this type of business. Most mills taking part are now larger and have push-button operations. They can run all day on one type of feed and have low costs.

However, Mr. Udell went on, one reason that the practice has not grown more is that the margin is so small. For example, the mill can provide no research, no quality control. With the low margins, the practice has not grown to any degree in the Los Angeles area the last two years, Mr. Udell said, but it has moved into other areas.

After Mr. Udell's remarks, Mr. Wolfkill commented that "we'll see more of this coming—we have it now."

Also, he commented that as feeders get larger, there will be more of a trend for feedlots to have their own mills.

Mr. Hitchman added that the industry's working on lower margins might tend to deter feeders from putting in their own mills.

Subsequent conversation on group specification buying indicated that the problems of producers' capital requirements and feed quality and formulation will tend to limit the trend. Producers may have to go to others, such as feed firms, for credit and capital and then would not be able to buy on specifications on a bid basis. Also, it was said that feeds purchased under this system may not reflect the latest nutritional knowledge and quality which are available from firms which provide for this in their margins.

Some felt that the practice would not increase where it now exists but that it would spread to other areas. Also, some indicated that buying by individual large feeders on the basis of a certain price over ingredient cost would increase.

How do those doing group specification buying obtain their markets? Mr. Udell said that in California most of these producers have contracts with large independent processors.

GUARANTEED PRICE PER BIRD TO THE GROWER—In opening his remarks on this subject, Mr. Fors commented that broiler contract growing is a "form of insanity in the feed industry." He said that there are as many contracts as there are integrators. He went on to describe one plan where the grower cares for the birds, furnishes the building and is paid a certain sum. The integrator furnishes the birds, feed, lights, litter and water. Usually, he said, the grower is paid 2¢ lb., plus 2½¢ per bird for litter, brooding, lights and water, and .6¢ if he delivers the birds to the processing plant. Some pay a flat 5¢ per bird, with variations based on market prices and incentive clauses. A large cooperative, he said, establishes a floor price of 18½¢ lb. to the grower. The grower is still responsible for his bills. He is advanced 6¢ when a bird is marketed, and then a settlement is made later, and if he earns the 6¢, he gets it.

Mr. Fors traced the development of contract growing and its spread into more areas. He said he does not feel that the farmer loses his independence. When he is paid for his labor at 2¢ lb., he can pay off his investment if he has enough volume. He has more security, Mr. Fors said. He can change from one program to another.

Mr. Fors went on to list reasons for the increase in contract growing, mentioning lower production costs in the area, the possibility of more orderly marketing, more uniform quality, better management on the farms. While there was an over-supply in the past year, he said, in the future, as fewer people make decisions, there will be a better balance between production and marketing.

"Contract growing will be here for some time to come," Mr. Fors said. "Not too many companies can afford to build their own production facilities. Some may build if they have enough money, but the contractor will be competitive if he does a good job."

IS THERE A PLACE FOR THE RETAIL DEALER IN THE INDUSTRY AS WE KNOW IT TODAY? IF SO, HOW WILL HE SURVIVE?—There is a place for the dealer, said Mr. Judd, but he "must compete or decay. If he ignores changes in agriculture, financing, bulk, etc., he will fail."

Mr. Judd described the results of a Dun and Bradstreet study of business failures among retailers, and 92% of them were described as being the result of faulty management—such as incompetence, inexperience, lack of management experience, etc. The successful feed and farm supply business, he said, is a result of good planning and management. Some of the principal problems of the farm supply business were listed as uneconomic pricing, shoddy housekeeping and lack of aggressive merchandising. The dealer

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Diversification of the business is a must, said Mr. Judd. The dealer must have a supply center and carry new lines with greater margins in order to have more stability.

Good services are essential. There is no place for the dealer who just warehouses or takes a commission on bulk, Mr. Judd said. But if he provides needed services, he can earn a margin.

Asked whether he sees feed as a principal part of the retailer's business in the future, Mr. Judd said the situation will vary by areas. However, he added, the dealer will have to diversify more.

DOES THE FEED INDUSTRY FEEL IT IS NECESSARY TO OBTAIN ITS MARKET FOR FEED BY ALL-OUT CONTRACT GROWING OF BROILERS, LAYERS, BEEF CATTLE AND HOGS? — In discussing this question, Mr. Ray first cited estimates on the extent of contract growing and integration in the U.S. It accounts for practically all broilers and 50% of the turkeys. In 1958, a USDA study showed, 10% of the eggs were produced under contract to market; less than 5% were under a production contract, with the grower paid so much per dozen or per 1,000 birds. The study also showed a number of large owner-integrated egg operations of 100,000 to 250,000 birds where the operator owns his own mill or does his own marketing.

Less than 2% of the hogs were produced under contract. Figures on cattle, including commercial feedlots, showed an estimated 10-20% under some type of contract. In many of these cases the producer hires someone else to do the feeding.

At the moment, said Mr. Ray, the feed industry as a whole does not find it necessary to go all out on contracting. On broilers, however, it is necessary to have tonnage. Much of the industry still feels it will not be necessary to go all out.

It was predicted that integration in turkeys and eggs will continue to increase. The swine industry, Mr. Ray said, could go either way. There likely will be some further increase in contracting, but it may not go so far as in poultry.

Discussing types of contracts, Mr. Ray said that in the future there will be more on an incentive basis rather than flat payments. Some operations have increased efficiency greatly through incentive clauses. In the future, there may be more sharing of risks and sharing of profits and losses.

Mr. Ray mentioned that the industry is in a period of sharp change, and firms which do not recognize and adjust to changes will be in trouble.

Mr. Udell added some comments on the difference between vertical and horizontal integration. In vertical integration, he said, there is one ownership of two or more segments of a whole process. In horizontal integration, several join together, under separate ownership, in agreement on a contract basis. They can perform their own particular services, agree on prices, etc.

It is possible to have a form of integration without total ownership, he said. For total integration of any size, dollar requirements are tremendous.

ARE FEED INDUSTRY MEMBERS ANTICIPATING OWNING POULTRY HOUSING AS WELL AS THE CHICKS?—"I think the industry is not now prepared to own housing, too," said Mr. Howell, "but many think it will come to pass.

"As flocks and herds become larger and margins narrow, individual farm income declines. The grower decides he must enlarge to keep his income up. He has to have borrowed capital, but banks are not interested in poultry financing. The grower's margin may be too low to enable him to pay off his investment.

"The feed man, wanting to protect his tonnage, will feel it necessary to put up capital for expansion that is necessary. But if he provides capital, the security is not too good. The alternative is to own the buildings, and then he will have to own the farm. I think this will come about."

Mr. Howell said the feed manufacturer needs protection of his investment through management checks. But unless it is an integrated set-up, it is hard to control funds from egg sales.

Also, assurance of a constant market is increasingly important, but there are pitfalls if there is not good control of an operation, and the best control is to own an operation, Mr. Howell said. Competent personnel are needed, but under contract deals one cannot readily let incompetent persons go and replace them.

Some large companies, he continued, are into test runs of this type of program. He went on to say he feels that consolidation and larger operations will be true of enterprises other than poultry, too.

"The industry as a whole should face up to the situation and be prepared to conduct large operations through credit or provision of capital or actual ownership. I agree that 99% of the feed manufacturers prefer not to do this, but they will be forced into it."

Asked whether he thought layer farms were more efficient under feed mill management, Mr. Howell said that management may not necessarily be as good but that "in the whole industry there are too many profits. In the future the entire profit may be in eggs or feed alone. Absentee ownership is not as good but it will have to be better than the average."

Mr. Ray observed that contracts which have been used are not as good as are needed. "Maybe more feed men will have to go all the way in order to maintain control over their investment," he said. "We hope not, but that is the reason this type of thing is happening."

He mentioned a broiler area feed man who had rated three types of operations: (1) The old type contract; (2) the share-profit-and-share-loss type; (3) complete ownership. This feed man, said Mr. Ray, rated No. 2 as his first choice and No. 3 as second choice.

FEED INDUSTRY OUTPUT AND PROSPECTS FOR THE FUTURE—Mr. Ray reported and commented on figures in the AFMA's recent feed tonnage report (Feedstuffs, Feb. 13). He noted, among other things, that swine and beef feed tonnages in 1959 were the highest ever. Egg-type feeds, however, have been decreasing every year since 1954, with a declining consumer demand for eggs.

Mr. Ray saw no strength in feed tonnage prospects in the next month or so. But over the long term there should be a continuing increase in volume to meet the needs of a larger population and the demand for more animal products. In the past 10 years, animal units increased 6%, while protein feed use rose 60%. Manufactured feed tonnage climbed 40% from 1949 to 1959.

Output will increase substantially, Mr. Ray said, but who will produce the feed is the question.

WHAT CAN BE DONE TO KEEP THE INDEPENDENT PRODUCER INDEPENDENT? — Mr. Hitchman observed that now, because of such things as borrowing and marketing changes, no producer is as independent as the old-style egg producer, for example, who selected his breed of bird, bought his feed and hoped he could sell his eggs. However, he said, the independent producer as he is now known will be in the picture and will still produce most of the eggs. He will work with a hatchery, with a processor who specifies quality, with a feed supplier who will be providing advice, etc. He will produce on a set of specifications for a market. In the old days, this producer could afford to make some mistakes, but now he cannot.

Mr. Hitchman said he thinks the independent producer will stay in business if he maintains competitive efficiency. Units will be larger, although size alone is not the main factor, and these units will seek a level of the greatest efficiency for family operation. These units, be they 5,000 or 20,000 birds, will be able to compete.

A big determining factor, said Mr. Hitchman, is credit. If the producer can borrow and put up efficient facilities, he can stay in and compete.

"In the feed industry," he said, "we want to see this. We want to use our capital and facilities to make feed and not to own poultry ranches. If the producer can borrow from banks and build facilities, he has a place."

WILL DIRECT SALES OF FEED FROM LARGE FIRMS TO PRODUCERS INCREASE?—Direct sales will increase, said Mr. Howell. "If a producer is largely or wholly financed, as many handlers as possible are bypassed in order to lower costs and enable the man holding the borrowed money to repay it," the speaker said. "I value dealer relations, but we must admit that as operations become larger, the dealer who is strictly a dealer will tend to lose out. The manufacturer has looked to dealers to handle credit, but when you get to 20,000 layers and the attendant risks, the dealer can't get capital.

"If a dealer is to be in at all, it will be on a commission basis. Unless he has substantial side operations to make money, it is slow suicide. He can't operate on $1 or $2 a ton. We will find more manufacturers going direct. First, there is the need for credit, and secondly there is the need to protect the investment."

Further panel discussion of this subject brought out the comment that as margins narrow, the poultry industry is within the two jaws of a vise with the feed manufacturer on one hand and the supermarket on the other. Margins will narrow more. An attrition in profit is being forced.

Also, it was mentioned that wheat legislation eventually will have to be changed. There will be more wheat for feed use, and livestock production will increase, reducing red meat prices and creating a squeeze like that in poultry.

To compete, it will be necessary to take out every step of profit. The feed manufacturer will have to cut his margin and not allow any intermediates in order to place feed on the market at the lowest price.

ARE FEED COMPANIES INTERESTED IN PROFIT ON EGGS, OR FEED, OR DOES IT MATTER WHERE THEY MAKE THEIR PROFITS? — Mr. Udell commented that basically the feed industry is getting its profit from the feed business. Meanwhile, agriculture is going through a revolution, and with it will come some of the developments described in the discussion. Some persons do not like to see these things, but some of them may be inevitable.

In the future, he said, more feed manufacturers and dealers may feel they will have to own birds and perhaps facilities. But the industry generally prefers, and now does, get its profit from feed. The speed or extent of change will depend on competition from other forces and how efficient is the dealer or manufacturer or integrator in putting together segments of the whole picture and performing a service and obtaining a price commensurate with the service rendered.

There are reasons for direct sales to increase, he said, but services do have a cost, and whoever can do the job most efficiently will do it.

In north Georgia there is a trend for contractors to own houses themselves because of size and other reasons. Instead of 2¢ lb., some find that they can produce for 1¼ to 1½¢ lb. if an entire family works.

Mr. Udell said that the feed manufacturer will continue to get his profit from feed but that there may be some further changes.

DOES THE EXPANSION OF SUPERMARKETS IN WASHINGTON SIGNAL ANY SHIFTS AS TO THE NUMBER OF BUYERS OF POULTRY, CATTLE, HOGS, ETC.?—The number of buyers is declining, said Mr. Fors. Eight buyers purchase 90% of the poultry in the state now. The processor, he said, "is in a bind if he loses one account in one week. The stores have good buyers—professional chiselers. They keep the industry in a turmoil."

Mr. Fors said the trend is to shifting or spreading of risks. The tendency will be for one group to "put the monkey on the back" of the next. Feed companies carry the thing so far after taking the money off the back of the grower. The trend then is to put the monkey on the back of the processor. Gradually more responsibility or control will work to the food chain. The supermarket companies, he said, want a constant supply, while now, under present conditions, it may erratic.

There now are some contracts with processors, who make arrangements for a certain volume.

FURTHER DISCUSSION — Mr. Wolfkill raised the question of costs for a poultry industry operator who has his own feed mill vs. an arrangement with a good mill in the local area that will do custom mixing at a certain price per ton over ingredient cost.

Mr. Fors, who has a feed mill in addition to his poultry business, said that this was a hard question to answer. He said that under the situation described by Mr. Wolfkill there would have to be a good understanding between the poultryman and feed man and that the mill would have to be close by.

Mr. Wolfkill raised the question as to whether it was economically better for a large feeder to invest capital in a mill and inventory, or obtain feed from a plant at so much per ton over ingredient cost and also get credit.

Mr. Fors said that what has happened elsewhere indicates this may be a sound approach, that it may be a way to get large feed volume.

Mr. Ray made this observation: "The important factor determining the feed manufacturer's profits is how efficiently he can provide feed. If he concentrates on this, he can do the job for feeders efficiently and cheaply. He should be sure he is doing the best possible job of his primary responsibility before he considers other things."

Another question was on the future role of the country elevator or mill in relation to the large terminal mill. Mr. Howell said he had not meant that the large terminal mill would be the big factor.

"In many respects," he said, "a good country miller can do better. It depends on the capital he can safely raise or invest in deals of the type described. The efficient country miller has a good chance to survive, depending on size and how well he is financed."

Mr. Ray observed that capital requirements in agriculture are the biggest thing leading to integration. In Indiana, he noted, the average investment per farm is $90,000, and many are over $200,000.

A person in the audience, commenting on financing, said that most poultrymen get in through integration and do not go to lending agencies. "We in industry give them an easy way by financing them."

Mr. Howell said: "At an Oregon meeting, a large Washington manufacturer said the plan for the future was to sell credit. Why should the farmer go to the bank? Feed companies put up money at lower rates."

Said Mr. Ray, taking note of recent problems in the poultry industry: "But there may be less of this in the future."

Reflecting on low end product prices and credit and contracting losses, no one offered any argument to that statement. And with that the discussion ended.

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
December 12	891	378	847	628	106	695	1,747	2,234
December 19	1,012	404	664	571	101	644	1,840	2,178
December 26	930	388	663	637	75	611	1,530	2,140
January 2	1,093	380	913	664	102	657	1,818	2,336
January 9	1,116	451	946	809	130	745	1,940	2,428
January 16	1,045	424	663	722	100	848	2,049	2,230
January 23	1,054	357	656	665	94	885	1,884	2,248
January 30	1,076	418	666	749	117	715	1,980	2,300
February 6	1,035	422	805	787	120	822	1,925	2,261
February 13	1,063	474	805	776	106	694	1,986	2,184

Week ending	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
December 12	1,056	346	2,506	332	5,506	177	2,711	1,944
December 19	987	368	2,597	324	5,642	198	2,770	1,996
December 26	610	346	2,275	299	4,824	165	2,641	1,843
January 2	1,112	440	2,956	365	5,983	190	2,862	2,267
January 9	1,034	436	2,866	361	6,181	234	3,019	2,160
January 16	1,086	471	2,847	321	6,319	200	3,153	2,207
January 23	1,123	539	2,787	338	6,456	209	3,277	2,149
January 30	1,128	500	2,823	349	6,765	172	3,280	2,420
February 6	1,114	560	2,923	396	6,799	182	3,464	2,352
February 13	1,220	470	3,074	381	7,019	183	3,365	2,482

Week ending	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1959-60	Total 22 areas 1958-59
December 12	3,140	290	1,725	319	154	960	28,692	29,967
December 19	3,021	319	1,748	281	188	1,042	28,911	30,879
December 26	2,770	235	1,409	229	158	1,011	25,789	29,019
January 2	3,334	355	1,759	287	255	1,046	31,173	31,704
January 9	3,261	425	2,043	355	233	1,152	32,325	30,827
January 16	3,450	428	2,123	320	254	1,033	32,303	29,761
January 23	3,484	372	2,112	311	260	1,151	32,408	30,661
January 30	3,578	383	2,175	378	239	973	33,184	31,343
February 6	3,617	401	2,329	407	249	1,119	34,089	31,837
February 13	3,874	364	2,333	385	207	1,131	34,576	32,970

MIDWEST

(Continued from page 6)

year than at any time in business history. And placement of new graduates will be difficult because experience shows that four out of 10 beginners will land in the wrong job or otherwise wash out in the first year on the job. "This will leave employers with a staggering loss in dollars and worthless training," he said.

Employers in the feed business, like many others in industry, have become somewhat casual in their attitude toward employment, with many resigning themselves to the theory that in a tight labor market one simply has to hire an applicant that is "warm".

"This is a costly philosophy, and with the present investment in employees running around $600 at clerical and factory levels and up to $15,000 per employee training process in sales and technical jobs, it can be a disastrous philosophy from a cost or profit standpoint if continued," he said.

LABOR RELATIONS—Losses of management rights are usually blamed on unions, but more often than not management is responsible for the loss, John Baird, industrial relations specialist with Ralston Purina Co., St. Louis, told the group.

Management prerogatives are lost through negotiations and compromises reached without knowledge of the real issues, he said, pointing out that management personnel need to have a better understanding of the aims of the labor movement. One of the prime objectives of labor, he said, is obtaining a voice in management. As an example of attempts to move in this direction he cited the union demand at one feed plant currently conducting contract negotiations that the union be consulted when a promotion is to be made.

Mr. Baird declared that the feed industry would have to train its line supervisors so that they may have a better understanding of both business and labor policies and be in a position to analyze and understand their decisions.

On the whole, he said, industry has done a poor job of communicating its points of view, while unions on the other hand have done a good job.

LAND GRANT CENTENNIAL — Dr. James H. Hilton, president of Iowa State University, noting the approaching centennial observance of the land grant college system, outlined some of the challenges facing educational institutions in the years ahead.

The land grant colleges were established to promote liberal and practical education, he said. At that time, the great need was to develop agricultural science in order to overcome a scarcity of food supplies. "Now, no other nation can produce food cheaper or more efficiently, and many people have been able to leave farming enterprises to supply manpower needed for industrial growth," he said.

These two forces, he continued, create new educational needs:

1. Interdependence of all segments of the economy.

2. Accelerated tempo at which changes are being made.

"We must train students to understand the many changes and to work with them intelligently," he said. "The skills a man has today may prove worthless in a few years. On the one hand we have a need for specialization and disciplines and on the other, a need for broader education. Our biggest challenge is in maintaining a balance between them.

Jay Richter, Washington agricultural writer and director of the Centennial Office, American Association of Land Grant Colleges, told of plans being made by the association to dramatize the needs of colleges as well as the need of industry for trained personnel during the centennial observance. (A Midwest Nutrition Conference, to be held in the fall of 1961 in Kansas City, will precede the centennial celebration, also scheduled for Kansas City. Eight state colleges and universities in the MFMA area will cooperate with the feed association in arranging the nutrition conference.)

Mr. Richter pointed out that industry is getting only about half the graduates it seeks from land grant colleges, and at the same time, colleges are short of staff members, laboratories and dormitories.

"These shortages are cause not only for our work day concerns, but also are in a broader sense a concern of a free nation," he said. A possible slogan for the centennial will be: "Education is the heart of a free society."

Educational Needs

Enrollments in agricultural colleges have been slipping partly because of the widespread misconception that the agricultural industry is a dying one, Dr. G. M. Watkins, dean of agriculture, Texas A&M College, said. Also, in some cases government controls placed on agriculture have influenced families to advise youngsters to avoid agricultural education.

"We must stress that 40% of the population is engaged in agriculture in a larger sense, even though only 10% of it is actually on the farm," he said.

At the same time, he continued, colleges must be sure that they have curricula to provide an education that will last a lifetime. "A student is not a storage battery. We must teach him basic skills and develop his ability to collect facts and evaluate them."

Dr. Watkins also described the counseling program employed at his college in order to orient new students to modern concepts of agriculture and agricultural industry.

Mutual Interests

Kansas State University and feed manufacturers have come to know and respect each other's interests in helping the livestock industry, Dr. Harold E. Jones, director of extension at Kansas State, said. The industry has had a great deal to do with helping to develop the university's curriculum and facilities.

Dr. Jones pointed out as an example of university-industry cooperation the folders offering dairy, swine, beef and poultry management tips prepared for distribution by county agents and feed companies in the state. This activity is part of a planned acceleration of similar extension activities with which the feed industry can cooperate, he said. Included in the plans are monthly bulletins on management, news releases for manufacturers to distribute to local papers, visual aids and radio releases.

VITAMIN A

(Continued from page 7)

the A deficiency. "When these two A supplements were fed at comparable levels (21,000 units daily), synthetic dry A was at least twice as efficient as alfalfa meal carotene in restoring blood and liver A values, and slightly better in restoring appetite and weight gains. Massive doses (100,000 units daily) of synthetic A for 14 days restored gains to normal and increased gains during this period by 65% over those at the same level of natural carotene in alfalfa meal."

The information reported at the conferences follows other reports from nutritionists who have told of better results with cattle by feeding higher than normal vitamin A levels. It is said that the nitrate problem may be involved in these situations. In some cases, cattle supplements containing massive doses of vitamin A are fed for short periods in order to build up reserves. Those following this practice feel that it is more economical than continuous feeding of extra amounts of vitamin A.

(Some other interesting comments on vitamin A showed up the other day, too. Lloyd Needham, general manager of the Sioux City (Iowa) Dressed Beef packing plant and a vice president of the National Independent Meat Packers Assn., commented at the Corn Belt Livestock Feeders Assn. meeting on the way beef is being fed for slaughter.

(Mr. Needham said that the Bookey Packing Co. of Des Moines is testing the effects of higher vitamin A levels in beef rations. "The carcass results," he said, "have been absolutely terrific. I understand they're working with big doses of around 33,000 units of vitamin A and coming up with choice beef on a 100-day feed.")

Other Comments

Meanwhile, in addition to the nitrate question, some nutritionists commented on vitamin A levels in general.

Dr. William H. Burkitt, director of nutrition for Montana Flour Mills Co., Great Falls, said: "There is a good possibility that vitamin A recommended levels may be lower than actual optimum levels. There is now some suspicion that cold may increase requirements for vitamin A. Many of the vitamin A standards and requirements were worked out in California in a warm climate.

"Also, there is evidence that phosphorus deficiency impairs the conversion of carotene from plant sources to Vitamin A in the animal body. Many of our range cattle are wintered under phosphorus-deficient conditions and may not, therefore, be getting full use of the carotene in the forage consumed.

"Many vitamin A requirements have been based on 'blood levels' of vitamin A. It may be that excitement of the animal in taking the blood samples temporarily increases the levels of vitamin A in the blood, as well as other nutrients. If so, then blood levels might give a false (high) value for the vitamin A status of animals."

Dr. Burkitt went on to say that researchers are giving a "lower and lower conversion efficiency of carotene to vitamin A all of the time. We used to think that the conversion was about 50% efficient, and now conversion factors of carotene to vitamin A are in the neighborhood of 20 to 30% efficient.

"Vitamin A requirement levels may need a new look and there may be good reasons for getting response from higher levels than recommended."

Dr. Burkitt said that in his area, for range pellets for wintering cattle and sheep, it is now common practice for feed manufacturers to add regularly 5,000 units per pound of stabilized vitamin A. Many ranchers, he said, call for higher levels of 10,000 or 15,000.

He commented on the practice in his case of adding 5,000 units per pound of vitamin A to feedlot supplements and not depending upon the roughage to supply adequate vitamin A.

"This program," he said, "is quite logical because of the low cost of the 'premium' for insurance against vitamin A deficiency. At the current cost for dry stabilized vitamin A products, it costs the customer but around 10¢ per head to feed 5,000 units per day for a total of 100 days. That's protection against vitamin A deficiency for 100 days per head for 10¢."

Texas Feed Unit Sets Regional Meetings

FORT WORTH, TEXAS—A series of regional feed meetings for members and guests of the Texas Grain and Feed Assn. to discuss various problems of feed dealers and mixers has been scheduled for five Texas cities starting Feb. 22.

Among the topics to be discussed will be credit problems, Food and Drug Administration rulings, bulk feed handling, poison-treated grain, local feed situation, corn borer quarantine in Texas, Texas feed control rules and feed drug inventory.

The meetings are scheduled for Feb. 22, Gunter Hotel, San Antonio; Feb. 24, Blackstone Hotel, Tyler; Feb. 25, Texas Hotel, Fort Worth; Feb. 29, Wooten Hotel, Abilene, and March 1, Student Union Building, Texas Tech, Lubbock.

Among those on hand to take part in the discussions will be Lloyd Larson, Kansas City, vice president, Midwest Feed Manufacturers Assn.; Walter Blanton, Carrollton, Texas, president of the Texas Grain & Feed Assn.; Reed McDonald, College Station, Texas, director of the Texas Feed Control Service, and Ray B. Bowden, Fort Worth, secretary of the Texas Grain & Feed Assn.

Meeting chairmen will be: San Antonio—R. E. Wendland, Wendland Grain Co., Temple; Tyler—Steele Wright, Texas Farm Products Co., Nacogdoches; Fort Worth—Floyd Deacon, B&D Mills, Grapevine; Abilene—H. O. Byrd, Ralston Purina Co., Lubbock, and Lubbock—Harry Dobbyn, Power Feed Mills, Abilene.

Local discussion leaders will be: San Antonio—John McVay, Alamo Feed Mills, San Antonio; Tyler—Rodney Pool, Tyler Feed & Seed Co.; Fort Worth—Bob Wallace, Wallace Grain & Feed Co., McKinney; Abilene—W. A. Gandy, Paymaster Feeds, Abilene, and Lubbock—W. Danforth Young, Farmers Corner, Lubbock.

MARKETS

(Continued from page 2)

prices has again been a lower one this week with the high proteins showing the most sell-off. On the other hand, millfeeds staged a very brisk recovery, nullifying to some degree the easiness in linseed, cottonseed and soybean oil meals. Counter pricewise movements such as this have resulted in bringing about no great price readjustments to the formula feed field.

South Central

According to trade reports, business in this region is moving along at about the same level that it has been for the past month. No great change appears in sight for the next two weeks or more.

Prospects are for some improvement to take place when turkey starters, chick starters and pig feeds are again in demand. However, some second looks are being taken at the amount of upturn that can be expected from these sources. There are two rather disturbing factors being discussed, without any general agreement being reached. First, the January hatchery report showing a 33% decline in egg-type chicks, which may or may not foretell of a continuing trend. Second, the possibility that a substantial number of sows may have been sent to market because of discouraging returns, thereby reducing the local pig crop.

In the meantime, hog feeds are moving fairly steadily as well as dairy and cattle feeds. Although concentrates for custom mixing are not a heavy source of business, most firms note a steady volume on these items also. Mill running time seems firmly anchored to a four to five day range.

Ohio Valley

Sales of formula feeds at Ohio Valley retail outlets continued this week in the low tonnages which have prevailed throughout the year to date, and manufacturers appeared in no mood to predict anything but "more of the same." This gloomy attitude was well in line with the typical February weather.

By a freak of nature, the heavy snowstorms which disrupted all forms of transportation to the south and west mostly bypassed the central valley area, where only about two inches of snow fell to provide a moderate degree of inconvenience for farmers. With farm lands already well saturated with moisture from numerous previous rainfalls, the melting snow will serve only to boost the underground water table and tend to further boost the crop yield next summer and fall.

Unless prices for farm crops show unexpected improvement this year, the increased crop yield will serve only to further glut the already overloaded government storage facilities. At least that was the discouraging opinion expressed this week by several area feed manufacturers.

But the gloomy late-winter days will soon be ended, and with the blooming of flowers and the budding of the trees, it is to be expected that the gloom will be supplanted by a much more cheerful attitude—especially if the customary spring business pickup develops.

Mountain States

Formula feed dealers all seem to agree that their business is off a little bit, again, from the previous weeks. Also, they reported that, as it looks right now, their business is a little less than a year ago at this time.

Cattle feeds and dairy feeds still draw the largest demand. The reason for this is that now is the time of year in this area for heavy feeding of beef and dairy cattle.

Pacific Northwest

Pacific Northwest demand for formula feeds lagged a bit this week, but movement on earlier orders averaged fair to good for most lines.

Mild winter weather ruled in most sections of Oregon, Washington and Idaho, with excessive rainfall causing restricted grazing of pastures.

Feed ingredient listings appeared on the weak side this week, with a slackened demand from all classes of buyers. There was an indication that feeders have filled current needs from inventory stock, with the period's purchases limited to scattered lots, for immediate fill-in needs.

Quotes for suncured alfalfa meal closed $1@3 ton lower as a result of an easier alfalfa hay market and increased offerings.

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Colorado Feeders Day Program Announced

FORT COLLINS, COLO.—Demonstration of a portable pelleting machine, an open house in the new animal sciences building, latest research reports on cattle and lamb feeding and a report on trends in beef cattle feedlot operations will be featured at the Feeders Day at Colorado State University, Feb. 25.

The Feeders Day event winds up a four-day Livestock Days program covering topics of interest to the state's livestock industry.

The portable pelleting machine will be demonstrated at 9 a.m. by its developer, Francis H. Clute, Clute Manufacturing Co., Rocky Ford.

Feeders Day visitors will convene in the ballroom of the Student Union at 10:30 a.m. to hear latest CSU reports on cattle and lamb feeding.

The report on lamb feeding will be given by Dr. Lamar Esplin, associate professor of animal husbandry. Current recommendations for feeding beef cattle will be presented by Dr. Dean Story, associate animal husbandman.

Kansas City Feed Club To Honor Members

KANSAS CITY—Veteran members of the Kansas City Feed Club will be honored when the organization launches its new year at the Hotel Phillips Feb. 23.

New officers, headed by Richard Shoop, Albers Milling Co., president, will present plans for club activities during the coming year.

A social hour in The Tropics Room will begin at 6 p.m. The group will then go to the Windsor Room for a steak dinner at 7 p.m.

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NICHOLS 108s Win 'Em!

California Random Sample Test

- Highest eviscerated yield—R. Cornish x Nichols 108 74.7%
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No. 2A—1958 Highest eviscerated percent of live weight—Vantress x Nichols 108 71%

No. 3A—1959 Highest score of uniformity (males & females)—Peterson x Nichols 108 91.27

(We'll be glad to show you the complete results of these and many other tests)

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Feed conv:	2.39	2.54	2.38	2.40	2.29	
Conv. U/wt:	1.81	2.09	1.95	1.84	1.80	

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